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For the Southern Agriculturist.

IMPROVEMENT IN THE HOME BREEDING OF HOGS.

Beaufort, July, 1841.

Mr. Editor:—Believing that our planters are beginning to be aware of the necessity of raising at home as much as possible, and of the consequent necessity of improving the breeds of domestic animals, I have thrown together a few remarks about Hogs, particularly Berkshire Hogs, the result of much reading and reflection, and a little experience, in hopes that they may prove acceptable to such of your readers as may desire to begin.

There are many improved breeds of swine, each of which has its merits and advocates, yet I feel little hesitation in saying that for all purposes of the planters in our low country, who aspire only to raise bacon and pork enough for their own use, and who prefer moderate sized hams &c., and not too fat, the Berkshires are decidedly the best breed of hogs yet known. The best description of them which I have seen is that given by A. B. Allen, of Buffalo, in an article on hogs, published in the Albany Cultivator for January, 1840, and which I will extract. "But the most decided improvement (in swine,) and which by the care and skill of recent breeders has now nearly attained perfection, was that of the black Siamese boar, upon the old stock of Berkshire County. The Berkshires were then mostly a long, large, coarse, lop eared hog, of a sandy or reddish brown, or white with black spots, and coming up not unfrequently, to the high weights of eight hundred, and even one thousand pounds. But it was a slow feeder, long in attaining to maturity, an enormous consumer, and in common with most of England's other varieties, an unprofitable beast. Yet possessing rather thicker hams and shoulders than the other kinds, a longer fuller body, and its meat abounding greatly in lean, the little, short, fat, black mouse-eared Siamese told well in the cross; and thus was produced the dark splendid Berkshire, that at present occupies the same rank among hogs that the Durhams do among cattle. They mature quickly, and like the Chinese, can be fattened at any age, and still may be selected, when desirable, for great sizes; are prolific breeders (having from ten to fifteen pigs twice a year,) and the best of nurses; thrifty, hardy, and of most excellent constitution. They are fine in their points, possessing remarkable thickness in the ham and shoulder, and show a round, smooth barrel of good length, that gives a lare proportion of side pork. They have

little offal, thin rind and hair, and few or no bristles. The meat still abounds greatly in muscle, and the hams particularly are highly prized, commanding an extra price in market, being very tender, juicy and lean."

The objections that would probably be urged against any improved breed of hogs, are that they would require too much care and feed, that they would be too large, and their meat would have too much fat and too little lean. It is not long since I shared these prejudices myself. I know that bacon cured at the North and in the West, was quite too large and fat for our taste, and therefore any breed that would suit their purposes would be quite too large and expensive for us, and to feed hogs to weigh two hundred or three hundred pounds at twelve months, and six hundred or eight hundred pounds when full grown, would cost more grain than we could afford to give, and would after all, be fatter than we could relish. I knew also that our domestic bacon was always superior to theirs, and attributed this to some peculiarity in our own degenerate race. I was aware that our common hogs are seldom fit for bacon under one and a half or two years, are great and unprofitable consumers, and sometimes cannot be fattened at all, yet I thought that as every thing could not easily be combined in one race, we had to choose between an improved and profitable breed, whose meat was not so good, and our old stock, whose meat was good but expensive. The sight of a pair of fine Berkshires staggered me somewhat in my resolution to stick to the old race; and the recollection, that I had in the spring, been obliged to turn out a pair of old barrows, after a whole winter's feeding on potatoes and corn for bacon, without any apparent improvement in their condition when there was plenty of room for it, determined me to try the Berkshire for myself. I began to think whether the quality of Western bacon might not be owing as much to the manner in which the hogs were fed as to any peculiarity in the breed, and it appeared to me to be unreasonable to expect that an animal raised all its life in a small pen, fed upon slops and cooked food, and killed long before it could attain anything like maturity, could have much lean meat, which is muscle, and which can be obtained only by exercise and age. I therefore thought that an improved breed with different treatment, would give different meat, and accordingly purchased three pigs just weaned. I have now had them eight or nine months, and feel no hesitation in saying that they are more active and industrious, consequently better able to shift for themselves than our common breeds, and with a little corn every night, will weigh at a year old nearly, if not quite, twice as much as a common hog, with exactly the same treatment. My experience coincides with that of other gentlemen around me in this respect. Let me not be misunderstood, a hog can no more keep fat upon starvation than any other animal, and there is no breed that can

live without eating, therefore persons must not expect Berkshire hogs to grow fast and keep fat without good pastures, or some grain, but in return, they certainly make an ample return in flesh for any food given, and to a person unaccustomed to see the growth of animals of improved breeds, their growth will appear astonishing. They are very gentle and domestic in their habits, being fond of being about the yard and stable, and show little disposition to root when wellfed. They are good breeders, raising many pigs. Lossing says, that he and some of his friends raised annually twenty-five pigs to each sow, and that they are such good nurses, that when well fed they never lose any of their pigs unless from accident. Like the Chinese, they may be fattened at any age, and make good bacon at eight or nine months old, yet they do not attain their full growth under one and a half or two years, and to have good, juicy and lean bacon, hogs ought never to be killed under eighteen months old, and two years, and even more would be much better. Let it not be thought that it would be too expensive to keep hogs so long, for as long as they are growing, and this they do for more than two years, they pay well for their food. Any one who has never seen a Berkshire hog in good order, can have little idea how much beauty, yea beauty, there is in one of them, and I am certain that any one interested in breeding hogs would never regret going five, or even ten miles to see a fine Berkshire. They are so domestic that they might very easily be raised in a small lot or field by such planters as are opposed to allowing hogs to run at large.

I have been raising Horses for about ten years, and find that I cannot make them grow beyond a certain (very moderate) size, and it seems to be of no consequence whether the mares are large or small, the colts alike grow only to the same, whether fed or only pastured. My father used to raise Race Horses, and I am told that he found the same difficulty. Is it the marsh? or what? for I find no difference between those that are stabled and fed, and those that earn their living tackey fashion. What is the experience of other Sea-Island planters that have raised horses? I would be glad to hear.

Yours, truly,

ROBERT CHISOLM.

For the Southern Agriculturist.

ON THE EXTERMINATION OF NUT-GRASS;

WITH REMARKS BY THE EDITOR.

Mr. Editor:—Do you know Nut-grass? And do you know how to get rid of it? Without waiting for your answer I will tell you. Hoe it from the beginning to the end of the season, at such short interyals as to prevent the upper vegetation from coming to maturity, i. e. from flowering. Your enemy, if he have been in long possession of his ground, will wage a hard contest with you for the greater part of the season, indeed you will be frequently tempted to believe him invincible; but towards the end of the campaign, if you have continued your attacks without wavering, you will perceive his courage and strength drooping, and by the end of it, that he is fairly on the retreat. But on the opening of the next campaign you will again see him, though in diminished numbers and in scattered positions. If you recommence your attacks, and continue the same tactics as before, about the 10th or 15th July, you will receive his final capitulation. I have in this manner exterminated a great deal of nut-grass.

The best way of hoeing this grass is to chop it an inch or so below the surface, and go over it once in every three or four days. I have never tried the plough expressly for this purpose, but I have no doubt that it would be equally efficacious—perhaps more quickly so. Indeed, I regard the plough, when steadily used, as the most certain eradicator of the nut-grass, while as to the joint-grass it is the best means in the world for propagating it. The reasons in both cases, are, I think too plain to require explanation. As to facts, we know that in the section where the plough is the common and chief implement, nut-grass is unknown, except in yards or inclosures, where the plough never comes; while joint-grass is the universal and growing pest.

The nut-grass shoots up in the spring from solid tubers, or nuts. The roots immediately after developing a certain length of leaf, form a little below the surface of the ground an enlargement or tumour, from which radiate on every side two distinct kinds of offsets —one a small black filiform radicle on which the nut is formed subsequently to the inflorescence—the other a whitish succulent brittle sprout, which after running a little way horizontally comes up another plant, which commences immediately to do the same as the first sprout; and this process is continued in quick succession to the end of the season. Soon after the several plants go to flower, the black radicles which issue from them begin to form the nuts, which remain in the ground as the parent sources of the vegetation of the next season. The old tubers die soon after bringing out the

new vegetation. The object of the foregoing treatment is to prevent the nut from being formed, and the representation I have made gives the rationale of it.

With respect, &c. F.

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In reply to our esteemed correspondent "F." we would inform him, that it has been our misfortune to form a very intimate acquaintance with the common enemy of the southern planter—*Nut-grass.* We will also suggest what we think a more successful, and certainly a far more economical method of exterminating it, than that proposed in his communication. Our remedy is deep winter ploughing, followed by the free use of the harrow or cultivator, and the frequent and diligent employment of the latter implement during the growth of the subsequent summer crop.

When we purchased our farm in the fall of 1839, we found one portion of it—about five acres—so badly infested with nut-grass, that the standing crop yielded a miserable return for the labor that had been expended upon it. One part of the five acres was in sweet potatoes, and the individual who cultivated the farm informed us, that he had been utterly unable to keep down the nut and joint grass, although he had hired additional force during the summer, expressly for the purpose of exterminating these common nuisances.

In the month of December we had the whole farm thoroughly and deeply ploughed by a large plough, and a pair of strong horses. To do this, we employed a labourer from the State of Maine, who had been accustomed to such work, and who performed it most effectually, notwithstanding the ground was very rough.

The plough was followed by the harrow, first in the direction—then across the furrow. By these means a large proportion of the tubers of the nut-grass were brought to the surface, where they were exposed to the frosts of winter.

Early in March, about one half of the five acres was manured broad-cast, ploughed again, seeded in oats, and thoroughly harrowed, so as to effectually cover the grain. The oats grew well, but just before it had attained its full growth, it was attacked by the army-worm—the larva of a small night moth *(of the genus Noctua,)* by which it was cut down as effectually in a few days, as it could have been done by the hand of man. About the first of June this same piece of ground was prepared for slips in the following manner: Furrows were drawn four and a half feet apart, with a large two horse plough, in which a good supply of manure was scattered, after which, with two bouts, with the same implement, (or four furrows) beds were formed upon the manure, in which all the stubble and sward were completely turned under. The hoes followed, and by a slight touch, made the beds smooth and even, after which

the whole was planted in slips, chiefly yams. The slips grew off beautifully, and yielded beyond our most sanguine expectations.—But it should be stated, in regard to the subsequent cultivation, as it may have an important bearing upon the nut-grass, that as soon as the slips had taken, the sides of the beds were ploughed down, by taking a slice from each, with a single mould-board plough, after which, the dirt was thrown back by the same implement, the work being completed by the hoes. The same process was repeated once, except that at the second working, after cutting the slice from the beds the cultivator was passed twice in the middle, so as to pulverize the ground thoroughly, and put it in condition to be hauled up readily by the hoes.

In the winter of 1840 this ground was again ploughed, although left in fine condition after the potato crop, and in the month of December and January following, was planted in dwarf marrow-fat peas, which yielded a most abundant crop. As soon as the peas were off, one part was put in water-melons—the remainder in corn —both of which have succeeded well.

We have already stated that only one half of the ground was seeded in oats. The other half, after thorough ploughing and harrowing in the spring, was put in melons, which during the early part of their growth, were repeatedly worked with the plough and cultivator. After the melons were off, this piece of ground furnished a most abundant crop of hay—not *nut-grass*,—but luxuriant crab-grass, which grew so rank as to be mowed with considerable difficulty. It was then cleared off, ploughed three times, harrowed as often, and ridged for turnips,—one half ruta-baga, the other half red-top, snow-ball, and pomerania. In putting in this crop, the ridges were formed twenty-eight inches apart, and the manure deposited in the interval. The ridges were then reversed so as to cover the manure, and the turnips drilled upon the top. The crop was kept clean, and the ground well pulverised, by means of a small plough, the cultivator, and the hoe. There was probably never a better crop of turnips raised near Charleston.

The same ground has yielded, the present season, a good crop of melons; will be ready for mowing in a few days; and will then be prepared again for turnips.

It may be stated, in general terms, that the nut-grass has disappeared, its place being supplied by a luxuriant growth of crow-foot *(Eleusine indica,)* and crab-grass *(digitaria sanguinalis.)* Some time after the first winter ploughing, the dead, dry, and partially decayed tubers of the nut-grass were seen thickly disseminated over the whole surface of the soil, and as those which were not brought to the surface by the first operation have been subsequently exposed by frequent stirring and other acts of tillage, they have been submitted to the same destructive processes, and the ground formerly so much infested, although it may here and there exhibit

a few plants of nut-grass, may be said to be as clear of this troublesome enemy of the farmer, as any land in the low country.

To all those who are troubled with nut-grass, our correspondent amongst the rest, we would recommend, as the best means of exterminating it:—

1st. Deep winter ploughing—not scratching with a small single horse plough, with a lazy negro to guide it—but ploughing to the depth of at least eight inches—even twelve, or more if possible—also frequent and thorough harrowing, or the use of the cultivator during the winter months, so that the tubers and stoloniferous fibres of the plant may be brought to the surface, and exposed to the frost. They need have no fears of injuring their lands by deep ploughing, provided they furnish them with an adequate supply of manure. The common prejudice against the plough, and the defective use of it, are the greatest curses upon low country Agriculture.

2d. To put such crops upon the ground as will admit of its being frequently stirred during the growing season, with the plough and the cultivator—especially the latter instrument.

By the adoption of this course, we will venture to predict, that in a few seasons they will have the satisfaction of seeing one of their most troublesome enemies effectually vanquished.

G———.

For the Southern Agriculturist.

REMARKS ON MR. RHETT'S ADDRESS, AND MR. ELLIOTT'S EXAMINATION OF IT:

BY WILLIAM WRAGG SMITH.

[Continued from page 346.]

EQUALITY OF PRODUCTION.

No. 1.—"*Who is the Producer?*"—An Address delivered before the Beaufort Agricultural Society, by Edmund Rhett, Esq., August, 1840.

No. 2.—Examination of Mr. Edmund Rhett's Agricultural Address, by Wm. Elliott, Esq.

2ndly. Is it, or is it not true that the net surplus in question is nothing more than a revenue transferred from one class to another, as Mr. Buchanan affirms.

We have little to add to Mr. Buchanan's remarks quoted under this section.* If the price of subsistence is not regulated by a

* "I have endeavored to shew in the observations on productive and unproductive labor continued in the fourth volume, that agriculture adds no more to the National stock than any other sort of industry. In dwelling on the re-production of rent as so great an advantage to society, Dr. Smith does not reflect

free competition in the supply from foreign markets, and it becomes dear from the increased difficulty of its production, the rise in rent which under these circumstances would take place, is unquestionably at the expense of the consumer. The net surplus of the land spoken of is nothing more than a revenue transferred from the mass to the proprietors. If subsistence were cheaper, labour would be cheaper, and profits would rise.

"The whole reduction," observes Mr. Ricardo, "which is made in wages, is a value actually added to the value of the neat income before possessed by the Society, whilst the only value which is taken from that net income is the value of that part of their rent of which the landlords will be deprived by a fall of raw produce. When we consider that the fall of produce acts upon a limited number of landlords, while it reduces the wages not only of those who are employed in agriculture, but of all those who are occupied in manufactures and commerce, it may well be doubted whether the neat revenue of the Society would suffer any abatement whatever."*

However bold a paradox it may seem to Mr. Elliott, we nevertheless venture, with our square in our hand, to hew out this truth, and place it along with others in our equable system. We assert, that a continued increase in the price and exports of rice, though it would give increased value to rice, land and negroes, would not increase the net revenue of the State, or its ability to pay taxes.—Such a permanent increase could only arise from an increase of population and demand from the limited quantity of good land, and the increased cost of production. The consumption in the home market would no doubt contribute to keep up the increase

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that rent is the effect of high price, and that what the landlord gains in this way, he gains at the expense of the community at large. There is no absolute gain to the society by the re-production of rent; it is only one class profiting at the expense of another class. The notion of agriculture yielding a produce, and a rent in consequence, because nature concurs with human industry in the process of cultivation, is a mere fancy. It is not from the produce, but from the price at which the produce is sold, that the rent is derived; and this price is got, not because nature assists in the production, but because it is the price which suits the consumption to the supply."—(*Ricardo*, p. 47.)

In another place the same author is quoted as follows:—

"In this view, it (rent,) can form no general addition to the stock of the community, as the neat surplus in question is nothing more than a revenue transferred from one class to another; and from the mere circumstance of its thus changing hands, it is clear that no fund can arise, out of which to pay taxes. The revenue which pays for the produce of the land, exists already in the hands of those who purchase that produce; and if the price of subsistence were lower, it would still remain in their hands, where it would be just as available for taxation as when by a higher price, it is transferred to the landed proprietor."—(*Ricardo*, p. 420.)

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* Ricardo's Pol. Econ., p. 444.

supposed; and the price of indian corn, the chief ingredient which enters into our labour, would, at the same time, rise. The price of labor would not rise from this cause alone, but in a much more important degree, from the natural relation which the price of negroes would bear to the price of rice. The diminution in the income generally of persons from the higher price they would pay for rice might be trifling in such circumstances as ours; but would not be so were there a large laboring population dependent upon rice as their habitual food. But the loss to the general income would be occasioned chiefly by the increased price in other things, which would be affected by the increased price of our labor, and could bear an increase of price; and in necessaries and luxuries generally, which have a tendency to proportion their prices to the existing prices of a great staple, and in the consumption of which, the rice-planter might sustain a diminution of income proportional to the increase derived from the high price of rice; and by the diminution of profits of other classes of producers—cotton-planters and other employers of labor who would pay dearer for their labor, and the articles they would consume, without any, the least compensation in the price of their products, which would depend on other causes totally unconnected with the price of rice, yet as a fair inference from the doctrine that "the sum of material, tangible, taxable wealth—the wealth that can raise an army, equip a fleet, or endow a college" *—resides in the agricultural interest alone, with the increased rise in the price of rice and negroes, the State could increase the taxes upon "the lands and negroes of the planter," and "the Federal Government the duties on cotton-bagging, negro cloths, blankets, &c.," † while the actual net revenue of the country would be in fact diminishing.

The distinction between material and immaterial labor or value, now claims our attention—a distinction taken for the first time by Dr. Smith and his followers. It is thus stated by Mr. Rhett:—"But there was still a reason for confining the title of producers to these classes of laborers. Their labor, it was said, fixed and realized itself in some sensible, material production, which continued after the labor itself was past, and, as occasion offered, set in motion some other equivalent amount of labor, which in turn replaced and multiplied itself in the same way. The Miner who extracted the mineral from the earth—the Merchant who brought foreign commodities into market—the Manufacturer who gave new forms to the raw products—all of these classes had, as the phrase went, something tangible to show for the products of their industy. None of the others had. Their labor was intangible, immaterial—it perished in the instant of its production. The poet, the politician,

* Examination of Mr. Rhett's Address, (Southern Agr. March,) p. 118.

† Ibid, p. 114.

the clergyman, the player, were in this particular situated alike—all of them consumed, none produced."

Let us see if this distinction will stand the test of examination. What is value? The property which any thing has, of commanding some other thing in exchange—the price of any thing according to some standard or measure of exchanges. Anything which we desire to obtain, for the gratification or the use of which we would part with something else, or with so much money, has value. If we deny that there is an immaterial as well as a material value, we must deny that man is a being compounded of body and soul. If all his wants are material, we must reduce him below the brutes, for even the brutes have some sense of immaterial enjoyments. Mr. Elliott, drawing a still finer wire than Adam Smith, contends for a different meaning of the term value. It may be the dullness of our comprehension, but we confess we do not understand his distinction. "Value," he says, "in its most general sense, means estimation, and here the term stands for an abstract, indefinite idea; but its more specific meaning is *price;* in that sense it necessarily refers to some material standard, and in that sense political economists consider it. The value of this bale of cotton, for example, is one hundred dollars! Now whether this value be inherent or superincumbent, or in whatever way attached, or whether it will cease when the world is at an end, is of no earthly consequence, it is sufficient for the planter to know that without his labor it would never have existed, that it is *real.*" "And besides the conviction of the planter as to the reality of material value, the State assumes as much in taxing the capital employed in growing this product, viz: the lands and negroes of the planter." *

But we *have* attached the meaning of price to value, and all we contend for is: the fact that immaterial as well as material products have their value in price or money—that the Lawyer's argument, or the Poet's canto will sell for one hundred dollars as well as the planter's bag of cotton; and that, without the labor, skill, and genius of these, the producers, the argument, or the canto, would never have existed. Does not the State, too, in many instances, tax the incomes derived from those immaterial values? Besides, it is by no means clear that the bag of cotton is altogether a material value. The product, the vehicle containing the value, may be material, while the labor which produces it may be both material and immaterial; and the value, or the use upon which that value depends, may be either wholly material or immaterial, or both at one and the same time. Thus the bag of sea-island cotton is, in itself, a substance; the lawyer's argument is not, though a brief or a deed is. The author's ideas are conveyed in a tangible, visible shape. The land is the subject, or *substruction*, to use Mr. Rhett's term, of the

* Examination, (Southern Agr, March,) p. 119.

planter's labor, but it contains an immaterial principle, that of fertility. Books and paper are to the lawyer and poet like land to the planter, with this difference, that the principle of fertility or production resides in the brain, in the ideas. The labor of the planter is partly bodily, partly mental. Without experience, judgment and skill, his mere bodily labor would avail little. The labor of the lawyer and poet is more that of the mind than of the body, actively, and in its results; though if we regard labor as bodily exhaustion, and personal application, it might be shewn that the planter who only employs the labor of others, uses his bodily labor the least of the two. But the *value* itself of the bag of sea-island cotton cannot be pronounced real or material, any more than the argument or the canto. It is plain that if luxury, refinement and fashion had not their immaterial fancies and caprices, their ideal gratifications to indulge in the use of those fine fabrics which are manufactured out of the bag of cotton, it would not be worth one dollar. Neither would the lawyer's argument or the poet's rhyme, where they were not appreciated and held in demand.

(To be continued.)

BACON AND HAM.

To instruct such as may wish to make Bacon or Ham, as well as to improve those now pursuing an imperfect mode of curing these dainty, though common, articles of food, I shall proceed to describe the practices followed in the best bacon counties in England, and also that pursued in Westphalia, concluding with a few instructions that may not be found useless.

The Buckinghamshire bacon is the very best in England; but the whole of that which is made is consumed in the county. In the farm-house kitchen, as well as in the common room of the cottar, a couple of flitches of bacon will be seen hanging in the chimney, subject to the action of the smoke arising from the wood fires in use there. Suspended from the ceiling of the room is a bacon rack, containing several flitches more, destined, in their turn, to occupy the sides of the chimney.

The hog being slaughtered by the hog butcher of the village or parish—for the Buckingham peasant has a horror of taking life, unless it be "professionally"—the carcase, instead of being scalded to get off the hair, is singed with burning straw and scraped. The head, the tongue, the chines, and the hands or shoulders, are then salted according to the ordinary method of salting meat. The hams are also separated from the flitches, which are cured in the following manner. Half a pound of saltpetre is pounded very fine, and divided into two equal parts, one of which is for the two hams, the other for the two flitches. This latter portion being also divided

into two equal parts, one of them is well rubbed over each flitch, especial care being taken to apply a large quantity to the parts whence the ham and shoulders have been removed. The flitches are then placed on the salting form during ten or twelve hours.—Meanwhile, seven pounds of salt are mixed with a pound and a quarter of coarse moist sugar, and heated in a frying pan, being stirred so as to give the same temperature to the whole mass. The mixture, as hot as the hand can possibly bear it, is rubbed over the flitches, which are then placed, one upon the other, in a salting pan, when the brine will immediately begin to form. The bacon must now be well basted and rubbed with the brine and turned twice a week, the under flitch being placed uppermost each time that the flitches are turned. At the expiration of four weeks the bacon is taken from the brine, hung up to dry, and afterwards smoked.

The two hams are cured simultaneously with the flitches. On the first day the quarter of a pound of powdered saltpetre destined for them, being divided into two equal portions, each ham is well rubbed with one of these parts. It is then placed in a separate dish, with the rhind or back part downwards, where it remains until the flitches are rubbed and put into the salting pan. Four pounds of salt, and a pound and a quarter of moist sugar, well mixed together, are then heated in a frying-pan, as for the bacon, and the hams well rubbed with the hot mixture, after which they are put into a separate salting-pan, to make their own brine. Here they are rubbed and basted with the brine, and turned every day during five weeks, when they are hung up to dry, prior to being smoked. The two brines are now mixed, with the addition of half a pound more of moist sugar; and this general brine is boiled and skimmed. A number of neat's tongues, salted during twenty-four hours, to make them disgorge, together with the tongues of sheep, hogs, and deer, previously put in salt for a few hours, are then placed in the brine by those who are sufficiently wealthy to obtain them. In three weeks these tongues are fit for the table, or for being dried and smoked.

The bacon and hams thus cured are hung up to dry in the bacon rack, and on nails in the kitchen, the hams being sometimes covered with brown paper,—a very unnecessary precaution. When the pickle that remained upon them has crystallised upon their surface, and they are quite dry, externally, the hams and bacon are hung in the chimney to undergo the action of the smoke arising from the wood fires—wood being the ordinary fuel used in the agricultural districts of Buckinghamshire. No artificial means of smoking are resorted to in this country as in Yorkshire, where hams are manufactured for exportation to London, and to India.

The Hampshire bacon and hams being next in repute to those of Buckinghamshire, will be next noticed. About Michaelmas seems the period adopted in most country places for slaughtering hogs and

converting their flesh into ham and bacon, in order that these may be smoked by the winter fires without additional expense; and this is the case both in Buckinghamshire and in Hampshire.

In this latter county the curing is very similar to the mode pursued in the former, with this only difference, that to four pounds of white and two pounds of bay-salt for the bacon, are added two pounds of coarse brown sugar, and four ounces of sal prunella; and for the hams, with two pounds of white, and one of bay salt, are mixed two pounds of brown sugar and three ounces of sal prunella. Along the sea-coast and in the channel islands belonging to this county, the bacon and hams are smoked with dried sea-weed, which imparts to them a rich and delicious flavour. Like the bacon and hams of Buckinghamshire, those of Hamshire never find their way out of that county except as presents. The hams made in the island of Jersey are of particularly fine flavour, and sometimes appear in London at the tables of those who have property in, or are connected with that island.

Though Suffolk may yield the palm to Buckinghamshire for bacon, it nevertheless produces the best hams in England, but which are made only for private use. The excellence of these hams depends more upon the mode of curing than upon the superiority of the meat, which is inferior to that of Buckinghamshire and Gloucestershire, where the closely-wooded lands, subjected in all parts to the rights of common, afford a sweeter nourishment to the swine than a more open country, intersected with numerous enclosures, and every inch of which is either tilled, or meadow land.

The process of curing the flitches and hams in Suffolk is this.—For the bacon, three pounds of white and two of bay salt, six ounces of sal prunella, and four pounds of coarse brown sugar, are heated, and rubbed as hot as the hand can bear over the flitches, after the latter have been sprinkled with salt and laid in a pan during twenty-four hours, and then wiped very dry. The moment the hot pickle has been applied to them, they are laid, each as it is rubbed in a clean salting-pan, one upon the other, when the brine instantly begins to form. They are rubbed and basted with the brine, and turned three times a week, putting the under flitch uppermost each time, till the expiration of four weeks, when they are hung up to dry, prior to their being smoked.

The hams are first rubbed with white salt and suffered to disgorge during twenty-four hours, at the expiration of which time they are treated in the following manner, after being wiped very dry with a clean napkin. Two pounds of white and one pound of bay-salt are mixed with three pounds of coarse brown sugar, four ounces of saltpetre, and two ounces of sal prunella. These ingredients when mixed, being put into a clean saucepan, some peppercorns, and a few grains of allspice, are added, and a quart of very stale ale, the staler and stronger the better, poured on the mixture,

and the whole well stirred together. This pickle is now put upon the fire, boiled and skimmed. It soon becomes nearly dry, and in that state is applied to the hams, the operator rubbing it well in as fast as it cools sufficiently for the hand to bear the heat. As each ham is pickled it is placed in a ham pan, where the liquid brine soon appears in great abundance. The hams are turned in this brine and basted with it every day during five weeks, when they are taken out and hung up. They are smoked, as is also the bacon, by being hung in the kitchen chimney, or in any other chimney where wood is burnt. Where there are no habitual fires of wood, they are smoked with branches of trees and leaves, and brushwood mixed with litter.

In Norfolk the bacon and hams are cured much alike. The inhabitants at Norfolk are methodical persons, who always go by weight and measure. I am, therefore, able to describe their process very accurately.

For half a hundred weight of bacon, making four stone, or fifty-six pounds weight, five pounds of common salt are mixed with a quarter of a pound of pounded bay salt, three ounces of saltpetre, the same quantity of sal prunella, and four pounds and a half of coarse brown sugar. The bacon, in the meanwhile, has been sprinkled with salt, and put into a tray, where it has lain during twenty-four hours. It is now put into a clean tray or into a pan, and the above pickle rubbed into it before the fire, as near as possible, without inconvenience. It is turned and basted in the brine every day during a month. It is then taken out and smoked during five or six days. The only difference in preparing the hams, is that these latter remain in the brine a week longer than the bacon, and are smoked a little longer. The Norfolk hams and bacon are not quite so good as the Suffolk.

The York bacon and hams are prepared like those of Buckinghamshire, but with a greater proportion of sugar and less salt.—Next to the hams of Suffolk may be classed those of Yorkshire. They are smoked in smoking-houses, where great numbers are fumigated at the same time, with wood, shavings, and a few aromatic herbs, the fire being made to smoulder and yield plenty of smoke by means of wet straw placed on the top. In some very refined ham manufactories, a few juniper berries are added, which certainly enhances the flavour of the ham.

It is a remarkable fact that these hams are never so good as after a voyage to India. On reaching that country, they have lost part of their weight, but are much improved in quality. The heat of the hold of the vessel melts some of their fat, which finds its way through the meat, the latter being often saturated with it, as are also the hempen bags containing the hams. This would tend to prove that new hams are not the best; and that to bring them to perfection they should be kept in a warm place. Perhaps it might be better

to lay them on shelves in the kitchen than to hang them up after they are smoked, according to the present practice; for if at present the heat should melt any of the external fat, it would fall to the ground rather than penetrate the meat, as would be the case if the ham were laid in a horizontal position, and turned every week.

The bacom made in Somersetshire is also of very fine quality; but none of it finds its way to the London market. The bacon from Wiltshire, termed in London Hampshire bacon, is an imitation of the Somersetshire, being, like this latter, cured with salt only, but being also very inferior to it. The moment a hog is killed in Somersetshire, it is cut up as rapidly as possible, and the sides or flitches sprinkled all over with bay salt, and laid in wooden troughs, where they are suffered to disgorge during twenty-four hours. They are then taken out and wiped dry. Meanwhile the troughs are thoroughly washed of these disgorgings, and well wiped. A quantity of bay-salt is then heated in a frying-pan, and the flitches being replaced in the troughs, as much hot salt as they will absorb is rubbed into them, the temperature of the salt being kept at the highest point that the operator can bear. This friction is repeated every day during four successive days, but the flitches are turned only twice in the interval, that is to say, each second day. The bacon, if the flitches are large, which is generally the case in Somersetshire, remain three weeks in the brine, being turned once in two days during this period. If the sides are small, they are removed from the brine at the expiration of sixteen days. When taken from the troughs, they are hung to dry, but not smoked.

The hams of Somersetshire are scarcely worth mentioning, being generally eaten green, except by a few families who cure them for their own use, each by a different process.

The delicious bacon of Gloucestershire, which, were it prepared after the manner adopted in Buckinghamshire, or that followed in Suffolk, would be still better, is cured like that of Somersetshire, with salt alone. In many parts of this beautiful county, among the peasantry and small farmers of the lower vale, and more especially among the foresters and miners of the Forest of Dean, the bead, the chines, spare-ribs, &c., of the slaughtered hog being removed. the body is divided down the spine into two equal parts, each side retaining its ham and shoulder.

On being ready, the sides are sprinkled over with salt and placed in a trough, where they disgorge during twenty-four hours. They are then taken out and wiped dry, whilst the trough is washed and dried. In the mean time, a quarter of a pound of saltpetre is rubbed into each side, a greater portion being applied upon and round the hams and shoulders; after the saltpetre has been left three or four hours to penetrate into the meat, this latter is rubbed with as much hot salt as it will absorb, and the sides replaced one

above the other in the trough. Two days after, they are turned and rubbed again with salt, which salting and turning is repeated once more at the expiration of two other days. They are now salted no more, but are turned every two days during a month, calculated from the period of their being rubbed with saltpetre; at the expiration of which time they are taken from the brine and hung up to dry without being smoked.

Such is the bacon of the free miners and foresters of the hundred of St. Briavel, forming the Royal Forest of Dean, whence our navy is supplied with the finest of its timber, and some of our best iron is made. This bacon possesses a sweetness and richness of flavor which may vie with that of Buckinghamshire, and would be unrivalled if less salt were used and the deficiency made up with coarse brown sugar or treacle, the former in preference.

Proceed we now to describe the hams of Westphalia, which are so celebrated throughout the civilized or christian world. There are three sorts of hams made in Westphalia: those from the domestic hog, those taken from the wild boar, and those derived from the stag. The first is very inferior to the others, though often imported into England, and sold for the best. The boar hams are larger than these, and may always be known by their weight and size. They have a fullness and delicacy of flavour which can never be imparted to the flesh of the tame hog. The stag hams are distinguished by their breadth and flatness; they are as rich and delicate as the boar hams, to which they are preferred by many. All these hams are cured by the same process.

The fresh hams when cut off, are well rubbed with and closely covered with dry salt. They are thus left during twenty-four hours. A quarter of a peck of common salt, the same quantity of bay salt, three pounds of brown sugar, a pound of saltpetre, a quarter of a pound of sal prunella, the same quantity of juniper berries bruised in a mortar, and an ounce of socho tied in a rag, having been previously boiled in two quarts of very stale strong beer, and double that quantity of water, or in six quarts of water without the beer, are suffered to cool after being well boiled and skimmed.—This brine is now ready to receive the hams, which, after being well wiped from the salt and blood, are put into it cold, and the liquor well rubbed in. In this brine, which must cover them if possible, they are turned three times a week for four successive weeks. They are then taken from the pickle and wiped very dry; after which a mixture of ground pepper, salt and bran, is rubbed over the hams, and into their crevices, when they are hung up to be smoked, a process occupying, by the ordinary domestic fires, from three to six months, according to the size of the hams.

[*Magazine of Domestic Economy.*

SILK MAKING IN SOUTH-CAROLINA.

We feel peculiar gratification in giving place to the following Communication, from one of the patriotic daughters of Carolina.—It would be interesting to retrace the history of our State, to shew the invaluable contributions she has, from time to time, received from the virtuous, intelligent, and refined ladies for which she has been at all periods so distinguished;—to dwell upon their patriotism and devotion to her best interests, in her hours of severest trial; and in holding forth the numberless instances of important services rendered by female industry and enterprise, to set before their fair and lovely descendants, an example worthy of immitation. To a daughter of Carolina, Miss Eliza Lucas, mother of the late General Charles Cotesworth Pinckney, is our country indebted for the first introduction, and successful cultivation of Indigo, which at one period constituted the most valuable article of export from Carolina. This she did one hundred years ago; and we think that Mrs. Spann, in her laudable endeavours to encourage the culture and manufacture of silk, persevering as she has done, through so many difficulties and discouragements, has set a like example, which if acted upon, as was that of Miss Lucas, cannot fail to be productive of the most important benefits to the Southern Agriculturists.

We have examined the specimens of sewing silk, sent by Mrs. Spann for our inspection, and although we confess ourselves incompetent to judge of the quality, we feel that we may safely say, it is altogether a beautiful article, and such, as in our humble opinion, cannot fail to give general satisfaction. We sincerely hope that Mrs. Spann will persevere; that she may find many to follow her praiseworthy example; and now that the Morus Multicaulis bubble has fairly exploded, these invaluable trees, instead of being considered as objects of wild and ruinous speculation, will be appropriated to their legitimate purpose—the feeding of silk worms, and the production of silk. Then shall we find the silk culture, formerly prosecuted with success in our State, brought again into favorable notice, bestowing upon our population a new source of wealth, and adding additional power to the independence of our common country.

G——.

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For the Southern Agriculturist.

SILK MAKING IN SOUTH-CAROLINA.

Charleston, July 19th, 1841.

Mr. Editor:—I send you a specimen of sewing and raw Silk, made from this year's cocoons. I am now feeding my second crop of worms, produced from the eggs of the first, and flatter myself I

shall this year make at least fifty pounds of sewing silk. The sample of sewing silk sent is the work of one of my servants without the slightest aid from myself or any one else. It is made on one of Brook's Machines, which she managed with great ease after a a few days experience. She can without any difficulty, spin and twist one pound of sewing silk in a week, which at $9 per pound, would, even allowing $4 per bushel for the expense of rearing or purchasing the cocoons, give a clear profit of $20 per month, for the labor of a girl of seventeen, aided by a child of ten years old, to turn the wheel of the machine. Bear in mind too, this girl has been taken out of the Cotton field, and had never seen a thread of silk made until the machine and cocoons were placed before her, and directions for using it given. I commenced last season with her; she then spun an even strong thread, but from some defect in management, it was not glossy. This year she has managed better to preserve the lustre of the silk, and I think a little more practice will enable her to make a very superior article, and also to spin more in the course of the week. I hope the coming year to make a considerable quantity of silk, and could I find persons disposed to raise, I would purchase cocoons, and by procuring for a few months a person skilled in making sewing silk, I could have from four to six reels running. I have had applications to that effect already, and believe that if one or two filatures were established, a great many cocoons would be made. There is a numerous class of persons who have not sufficient faith to go into the business largely, but who still have facilities to enable them to make a few bushels of cocoons. The want of a home market for cocoons deters them from raising, as the quantity made is not worth the trouble of exporting.

I am afraid sir, to express to you my own opinion of what can, and I think will be done, in silk in a few years. I know how much incredulity prevails on the subject, and it would seem like presumption to place my opinion in opposition to so many others.—This much I will say, that as the folly of one individual can seldom injure any but himself, I am determined to persevere, and if at last I do fail, to bear patiently the ridicule that I know will attach itself to my castle buildings.

I am, very respectfully,

ELEANOR SPANN.

ON THE WHITE FLANDERS CARROT.

Last year I imported fifty pounds of White Altringham or Flanders Carrot Seed, and sold it to farmers in different parts of the country who have returned favorable accounts of it.

The carrot is only recently introduced from France, where it was first brought into notice by M. Vilmorin, and is now pretty extensively cultivated. One great advantage which it posses is, that from the comparative shortness of its roots, and their above ground habits of growth, it is well adapted for shallow soil, which has not depth sufficient to grow the large rooted varieties. A friend in New Bedford who had some of the seed, thus writes, "I have exhibited some of the carrots in our market and our farmers are much pleased with them. I consider them a valuable acquisition to our list of roots, and a most fortunate *cross*—I say *cross*, for my impression is, most decidedly, that the work of amalgamation has been secretly going on, between the parsnep and the carrot, and no act of the Legislature can prevent it.

The same number of men that harvested eighty-two and a half bushels of the Orange carrot in one day last year, have this year harvested one hundred and eighty-four bushels of the White, and from this reason, the white grows out of the ground from two and a half to six inches, so that they can easily be drawn from the ground. You may send me fifteen pounds of fresh seed next year."

C. P. Bosson.

REMARKS BY THE EDITOR.

We are requested by Mr. Bosson to make an experiment on the White Carrot and compare it with the Orange and Yellow Altringham. We sowed a few drills of each kind, side by side, in a light sandy soil, without manure, on the 26th of May. After sowing these drills we mixed the different varieties of seeds together and sowed a few drills more.

It was evident from observation after the carrots had attained any size of consequence that the white carrots were the most productive, and when they had attained a full growth the difference was still more apparent. We should have measured the product of each kind and learned the difference with precision, but owing to extremely dry weather some of the seed failed and the plants came irregularly, so that this method could not have been a fair test.

On digging the carrots where a mixture of seeds was sown; we were astonished to see so great a difference between the white and other varieties, as we supposed that the white being partially out of the ground exhibited on a superficial view more difference than there really was.

We have just examined this mixed lot, and we find that the largest yellow or orange carrots are only fifteen inches in length, and seven inches in circumference, and only a small part are this size; and these are as large as could be expected in a soil rather poor in condition and without manure, and in a very dry soil, in a season extremely dry.

But with all these disadvantages the white carrots are of a nobler size: about two thirds in number are quite large. The longest are two feet in length and a good number eighteen inches long. The largest are over eight inches in circumference, and the greater part are from seven to eight in circumference. These are but very small ones. Take the lot together the white carrots are more than twice as large as the others.

The white carrot grows partly above the ground like the mangel wurtzel, so that they may be pulled with much more convenience than the other varieties. Some of them were six inches above the ground. Whether the white carrot is as nutritious, and will produce as much milk and yellow butter as the orange and yellow, we cannot say, but in sweetness and pleasantness it excels the two kinds we have named, for our taste, and we prefer it to them for table use. It answers well for this purpose when used early, or sowed late for winter that it may not get a full growth.

The early Horn carrot is a fine tender sweet root, and the only kind of a carrot which we cultivate for the table, as it is far superior to other kinds.

We have been particular in our remarks on the white carrot as we consider it a superior root—one that will yield a large and profitable crop from a rather poor soil, and one that is sufficiently hardy to bear up against unfavorable circumstances. Though we have given the facts in the case that show on inspection double the amount from the white carrot, we would not recommend its culture with a view that there will under all circumstances be so great a difference.

We made an experiment with two varieties of the white carrot —the better the same as this—and the produce was great. We sowed the 20th of June, which was late, and on that account the produce was probably twenty-five or thirty per cent less, but the yield was at the rate of six hundred bushels to the acre. The land was in good condition but not extremely rich.

Farmers, try this carrot, we can assure you that it is superior in its yield, and if a crop of roots can be increased ten per cent by a new variety of seed, it is well worth while to try it. This excess will pay far more than all expenses for seed, and the trouble of an experiment.

According to European authorities, the white carrot as Mr. Bosson has stated, is suited to shallow soils, as it grows partly out of

the ground, but we think that it is also well adapted to deep soils as it penetrates as deep or deeper than other carrots. In the lot which we have named, allowing that the longest was six inches above the surface, then it extended nineteen below, which is more than the length of the other kinds; so besides the extension above the surface the white carrot penetrated deeper than the other varieties.

A few weeks since, we gave an account of this root, valuable on account of its superior yield, its excellence for the table, and convenience in digging, on account of its growing partially out of the ground.

The specimens at our office have been examined, *dissected* and remarked upon by many good judges of vegetables. Some of them think that it is a hybrid produced by a cross of the carrot and parsnep; others think it a distant species, and should have some other name.

In shape, this carrot does not taper off gradually from the top, like most other carrots, but it holds its size in some cases till near the middle of the root. The tops are like those of other carrots.—There is a layer on the outside of about one third of an inch in thickness, on a root of middling size, which may be readily pealed off; this has a strong taste of fennel; it also has the smell of the parsnep, and a slight parsnep taste is perceptible. The taste of the carrot is not so readily noticed, and in some cases would not be perceived at all.

The inner part has a different taste; in some that had laid a short time in our own room, and became a little shrivelled, the part within the layer we have named, had the taste both of the chesnut and ruta baga.

When boiled, it is sweet and excellent, but no peculiar taste that would induce a person to suppose it was a carrot or parsnip; it is far superior to the common yellow carrot, and equal or superior to the fine, tender, delicate kind, called "Early Horn." We prefer it to a good beet, but we should choose to have both, for sake of variety. This is given from little experience.

In our previous account, we showed that the white carrots were twice as large as the long orange or yellow Altringham, sowed promiscuously together; we think that so great a difference was occasioned by the disadvantages of a dry soil, dry season, and want of manure, which the white bore remarkably well, and produced noble roots. Under favorable circumstances, for a good crop, we think the difference would be less, but still important, so much so, as to be worthy of particular attention. We consider the properties of this root, which bear up under disadvantages, among its great excellencies.

[*Yankee Farmer.*

OBSERVATIONS ON THE MANAGEMENT OF WHEAT:

BY JUDGE O'NEALL.

To the Newberry Agricultural Society:—

In discharge of the duty assigned to me, with other members, at the last meeting of the Agricultural Society, I will, as well as I am able, put you in possession of all the information which I possess, on the subject of wheat. I have now for twenty-one years, annually sowed a crop of wheat, and I have uniformly made some, although in two years that some was very little, and very indifferent. Yet, on the whole, I have generally made enough for the use of my family, and I am persuaded that there are few farmers, who cannot do as well, and many who can do abundantly better.

The attention should be first directed to the selection of seed. It is an old saying, that "a change from sand is no change at all," by which is meant, when you change your seed wheat, do not take from a sandy soil. A strong clay soil gives the best varieties of wheat. For our climate, wheat from the North or West does not answer well: it is generally too late, and is more liable to the rust. If we could obtain wheat from the parallels of latitude in the old world, corresponding with ours, I think it would succeed admirably. So too, wheat from the South and South-West of our own continent, will do well, and hence I have no doubt, that the variety of Texian Wheat, introduced among us by our estimable citizen, and enterprising and skilful farmer, John Wilson, will succeed admirably. Of our own varieties, none have answered so well with me, as that which is known by the name of the Holland Wheat.—It is a small yellow grain, and weighs uniformly sixty pounds, and upwards to the bushel. It ripens about a week earlier than our common winter wheat, and will stand longer after it is ripe. As it ripens, the field exhibits a most beautiful yellow golden appearance: looking at it is gently moved by the wind, it looks like a sea of molten gold. It is not as liable to rust, blight or smut. I obtained it from John Holland, of Laurens, in the year 1833, when the wheat of the upper country, was entirely blighted and destroyed. He made from twenty acres two hundred bushels of nicely cleaned, merchantable wheat. I have sowed it every year since. This year, and 1839, it was slightly touched by the rust, but not so as to injure it; in 1839, I found a little smut in it, but not enough to compel us to wash it.

The seed ought not only to be selected from a good variety, but it should be well prepared for being sown. In the first place, it should be thoroughly dried by the sun before it is put up for seed; this prevents weavels, and gives sound and healthy grains for vegetation. In the next place, sift the seed carefully with a good sand seive: this will take out all the small immature grains. In the third place, for twenty-four hours before you sow it soak your seed in a

preparation of water, saturated with about one pound of blue stone to every five bushels of wheat. Before you take out your seed wheat, which will be found at the bottom of the cask or tub, in which you soke it, skim off the floating grains and trash. When I have pursued this course, which was recommended to me by my friend, John S. Carwile, I have escaped the smut. At least a bushel of seed should be sown to the acre. When the ground is good, from one and a quarter to one and a half bushels may be sown. Wheat thus sown will make a greater yield, and is not so liable to rust. This idea, I remember, was suggested many years ago by Mr. North, to the Farmer's Society of Pendleton, and was enforced by such reasons, as induced me to yield my assent to it fully. I wish that by some means, the Agricultural community could again have the opportunity of reading that valuable practical essay.

More attention I know ought to be bestowed on the ground on which wheat is sown, than we generally do. Fallow land is best for wheat. If it is well broken up, and the wheat well put in with a shovel plough, and the ground made level and smooth with a barrow or roller, I think we should hear little complaint of the Hessian fly. Few will, however, for the present, take so much pains. Our Society is intended to encourage improvement, and I hope some one will try this suggestion.

Wheat ought to be sown on clay soil, and never later than the 1st or 2d week in October: still earlier would, I think, be better. Twenty bushels of Cotton seed to every acre will give to the crop a fine, healthy, and vigorous state. I incline to think that a top dressing about the 1st of March, of about five bushels to the acre of slacked ashes would greatly improve the crop. I have never tried it on wheat, but I know that it is a great benefit to cultivated grasses.

The crop of wheat ought to be cut before it is dead ripe: it should stand two or three days in the field in small shocks. If the weather is dry, it may then be housed safely. As soon as the crop is laid by, (about the middle of July,) the wheat should be thrashed out, cleaned, and well sunned. One day's sun is scarcely ever sufficient. Two successive days is generally enough. I take it up and put it away while hot from the sun; in the course of a few days afterwards I commence to grind. In this way my flour at the end of a year is just as good as it was on the day on which it was ground. Good flour can only be expected from good wheat, in good condition. When that is the case, a good mill, with good cloths and a skilful miller, can make as good flour here, as can be made anywhere. Many persons ruin their flour by desiring to have more than can be made. My father, whose long experience and skill in the manufacture of flour is well known, states that the following ought to be the results of a well ground bushel of wheat, weighing sixty pounds. One-tenth, six lbs. must be deducted for toll, one-sixth, ten lbs. for bran—nine lbs. for middlings and shorts,

which will make an aggregate of twenty-five pounds, leaving thirty-five pounds of flour. From which it appears, that a little less than six bushels, (say five and a half,) will make a barrel of flour weighing one hundred and ninety-two pounds neat.

JOHN BELTON O'NEALL.

Springfield, July 8th, 1841.

[*S. C. Temperance Advocate.*

PREMIUMS OFFERED BY THE STATE AGRICULTURAL SOCIETY.

We would call the attention of Editors throughout the State, to the list of Premiums published, and respectfully request an insertion of it in their respective papers. The State Agricultural Society has already done much by giving an impetus to the spirit of improvement in our stock, which will doubtless be much more increased by the sale of fine stock, that will take place after the exhibition. [*S. C. Temperance Advocate.*

THE STATE AGRICTLTURAL SOCIETY OF SOUTH CAROLINA.

PREMIUM LIST FOR 1841.

For the best Stallion for Agricultural purposes,		$20	For the 2nd best Heifer, three years old,	A Silver Cup,	10
For the best Mare for Agricultural purposes,	A Silver Cup,	20	For the best yearling Heifer,	"	10
For the second best Mare,	"	15	For the best Bull Calf,	"	10
For the best Colt,	"	10	For the best heifer Calf,	"	10
For the best Filly,	"	10	For the best Boar,	"	10
For the best Bull,	"	20	For the best Sow,	"	10
For the second best Bull,	"	15	For the second best Boar,	"	8
For the best two year old Bull,	"	12	For the second best Sow,	"	8
For the best yearling Bull,	"	10	For the best pair of pigs under 1 year,	"	5
For the best Cow,	"	15	For the best pair of pigs under 6 months,	"	5
For the second best Cow,	"	12	For the best Ram,	"	15
For the best Heifer under 3 years old,	"	15	For the second best Ram,	"	10
			For the best Ewe,	"	10
			For the best pair of Lambs,	"	10

The second annual Cattle Show of the State Agricultural Society of South Carolina, will take place in Columbia, in the State House Yard, on Wednesday of the first week of the Session of the Legislature in November next.

Gentlemen interested in the improvement of Stock, are respectfully requested to contribute to the exhibition. It is expected to have a sale of fine stock at the same time and place.

All who intend to exhibit Stock, are requested to communicate to the Secretary, before the 15th November, the number and kind, in order that proper arrangements may be made.

By order of the President,

ROBERT W. GIBBES,
Recording Secretary.

HORTICULTURE.

AN OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE;

BY JOHN LINDLEY, F. R. S. &C.

[Continued from page 367.]

III.—STEM.

57. The stem is that part of a plant which is developed above ground, and which took an upward direction at the period of germination.

58. It consists of a woody axis, covered by bark having stomata on its surface, bearing leaves with leaf-buds in their axillæ, and producing flowers and fruit.

59. The points where leaves are borne, are called *Nodi;* the spaces between the leaves are *Internodia.*

60. The more erect a stem grows, the more vigorous it is; and the more it deviates from this direction to a horizontal or pendulous position, the less is it vigorous.

61. Some stems are developed under ground, such as the Tubers of the Potato and the Cormus of the Crocus but they are known from roots by the presence of leaves, and regular leaf-buds upon their surface.

62. Stems increase in diameter in two ways.

63. Either by the addition of new matter to the outside of the wood and the inside of the bark, when they are *Exogenous;* ex. Oak.

64. Or by the addition of new matter to their inside; when they are *Endogenous*; ex. Cane.

65. In Exogenous stems, the central portion, which is harder and darker than that at the circumference, is called *Heart-wood;* while the exterior, which is softer and lighter, is called *Alburnum* or *Sap wood.*

66. The inside of the bark of such stems has also the technical name of *Liber.*

67. The Heart-wood was, when young, Alburnum, and afterwards changed its nature, by becoming the receptacle of certain secretions peculiar to the species.

68. Hence the greater durability of Heart-wood than of Sap-wood. While the latter is newly formed empty tissue, almost as perishable as bark itself the former is protected against destruction by the introduction of secretions that become solid matter, which is often insoluble in water, and never permeable to air.

69. The secretions by which Heart-wood is solidified are prepared in the leaves, whence they are sent downwards through the

bark, and from the bark communicated to the central part of the stem.

70. The channels through which this communication takes place are called *Medullary Rays*, or *Silver Grain*.

71. Medullary rays are plates of cellular tissue, in a very compressed state, passing from the pith into the bark.

72. The wood itself is composed of tubes consisting of woody fibre and vascular tissue, imbedded longitudinally in cellular substance.

73. This cellular substance only developes horizontally; and it is to it that the peculiar character of different kinds of wood is chiefly due.

74. For this reason the wood of the stock of a grafted plant will never become like that of its scion, although, as will be hereafter seen (IV.,) the woody matter of the stock must all originate in the scion.

75. The stem of an Exogenous plant may therefore be compared to piece of linen, of which the weft is composed of cellular tissue, and the warp of fibrous and vascular tissue.

76. In the spring and autumn a viscid substance is secreted between the wood and the liber, called the *Cambium*.

77. This Cambium appears to be the matter out of which the cellular horizontal substance of the stem is organised.

78. In Endogenous stems the portion at the circumference is harder than that in the centre; and there is no separable bark.

79. Their stems consist of bundles of woody matter, imbedded in cellular tissue, and composed of vascular tissue surrounded by woody fibre.

80. The stem is not only the depository of the peculiar secretions of species (67.,) but is also the medium through which the sap flows in its passage from the roots into the leaves.

81. In Exogenous stems (63.,) it certainly rises through the alburnum, and descends through the bark.

82. In Endogenous stems (64.,) it probably rises through the bundles of wood, and descends through the cellular substance; but this is uncertain.

83. Stems have the power of propagating an individual only by means of their Leaf-buds. If destitute of Leaf-buds, they have no power of multiplication, except fortuitously.

IV.—LEAF-BUDS.

84. Leaf-buds are rudiments of branches, enclosed within scales, which are imperfectly formed leaves.

85. All the leaf-buds upon the same branch are constitutionally and anatomically the same.

86. They are of two kinds; viz: *regular* or *normal*, and *adventitious* or *latent*. (119.)

87. Regular leaf-buds are formed at the axillæ of Leaves.

88. They are organs capable of propagating the individual from which they originate.

89. They are at first nourished by the fluid lying in the path, but finally establish for themselves a communication with the soil by the woody matter which they send downwards.

90. Their force of developement will be in proportion to their nourishment; and, consequently, when it is wished to procure a young shoot of unusual vigour, all other shoots in the vicinity are prevented growing, so as to accumulate for one shoot only all the food that would otherwise have been consumed by several.

91. Cutting back to a few eyes is an operation in pruning to produce the same effect, by directing the sap, as it ascends, into two or three buds only, instead of allowing it to expend itself upon all the others which are cut away.

92. When leaf-buds grow, they develope in three directions; the one horizontal, the other upward, and the third downward.

93. The horizontal developement is confined to the cellular system of the bark, pith, and medullary rays.

94. The upward and downward developements are confined to the woody fibre and vascular tissue.

95. In this respect they resemble seeds; from which they differ physiologically in propagating the individual, while seeds can only propagate the species.

96. When they disarticulate from the stem that bears them, they are called *bulbs*.

97. In some plants, a bud, when separated from its stem, will grow and form a new plant, if placed in circumstances favourable to the preservation of its vital powers.

98. But this property seems confined to plants having a firm woody, perennial stem.

99. Such buds, when detached from their parent stem, send roots downwards and stem upwards.

100. But if the buds are not separated from the plant to which they belong, the matter they send downwards becomes wood and liber, (66.,) and the stems they send upwards become branches.—Hence it is said that wood and liber are formed by the roots of leaf buds.

101. If no leaf-buds are called into action, there will be no addition of wood: and, consequently, the destruction or absence of leaf-buds is accompanied by the absence of wood; as is proved by a shoot, the upper buds of which are destroyed, and the lower allowed to develope. The lower part of the shoot will increase in diameter; the upper will remain of its original dimensions.

102. The quantity of wood, therefore, depends upon the quantity of leaf-buds that develope.

103. It is of the greatest importance to bear this in mind in pruning timber trees; for excessive pruning must necessarily be injurious to the quantity of produce.

104. If a cutting with a leaf-bud on it be placed in circumstances fitted to the developement of the later, it will grow and become a new plant.

105. If this happens when the cutting is inserted in the earth, the new plant is said by gardeners *to be upon its own bottom.*

106. But if it happens when the cutting is applied to the dissevered end of another individual, called *a stock*, the roots are insinuated into the tissue of the stock, and a plant is said to be *grafted;* the cutting being called a *scion.*

107. There is, therefore, little difference between cuttings and scions, except that the former root into the earth, the latter into another plant.

108. But if a cutting of the same plant without a leaf-bud upon it be placed in the same circumstances, it will not grow, but will die.

109. Unless its vital powers are sufficient to enable it to develope an adventitious leaf bud. (119.)

110. A leaf-bud separated from the stem will also become a new individual, if its vital energy is sufficiently powerful.

111. And this, whether it is planted in earth, into which it roots, like a cutting, or in a new individual to which it adheres and grows like a scion. In the former case it is called *an eye*, in the latter *a bud.*

112. Every leaf-bud has, therefore, its own distinct system of life, and of growth.

113. And as all the leaf-buds of an individual are exactly alike, it follows that a plant is a collection of a great number of distinct identical systems of life, and consequently a compound individual.

114. Regular leaf-buds being generated in the axillæ of the leaves, it is there that they are always to be sought.

115. And if they cannot be discovered by ocular inspection, it may nevertheless be always inferred with confidence that they exist in such situations, and may possibly be called from their dormant state into life.

116. Hence, wherever the scar of a leaf, or the remains of a leaf can be discovered, there it is to be understood that the rudiments exist of a system of life which may be, by favourable circumstances, called into action.

117. Hence, all parts upon which leaves have ever grown may be made use of for purposes of propagation.

118. From these considerations it appears that the most direct analogy between the Animal and Vegetable Kingdoms is with the Polypes of the former.

119. Adventitious Leaf-buds are in all respects like Regular leaf buds, except that they are not formed at the axillæ of leaves, but develope occasionally from all and any parts of a plant.

120. They are occasionally produced by roots, by solid wood, or even by leaves and flowers.

121. Hence roots, solid wood, or even leaves and flowers may be used as means of propagation.

122. But as the developement of adventitious buds is extremely uncertain, such means of propagation can never be calculated on; and form no part of the *science* of cultivation.

123. The cause of the formation of adventitious leaf-buds is unknown.

124. From certain experiments it appears that they may be generated by sap in a state of great accumulation and activity.

125. Consequently, whatever tends to the accumulation of sap in an active state may be expected to be conducive to the formation of adventitious leaf-buds.

[To be Continued.]

VEGETABLE GARDEN.

THE TURNIP.

1. *Brassica Rapa*, common Turnip.

2. *Brassica Campestris—Napo Brassica*, Swedish Turnip—Ruta Baga.

The Turnip grows wild in numerous parts of Europe, but in its native state is scarcely to be distinguished from mustard or rape, in the general characters of its growth. Like the carrot, parsnip, cabbage, &c., it has acquired all its excellent properties by cultivation, thus furnishing an instance among thousands of others, of the capacity of man to render subservient to his wants the productions of nature, which a benificent Providence has so bountifully spread before him, only awaiting the aid of his industry, to be converted into inexhaustible sources of wealth and comfort.

"Turnips and clover," says Loudon, "are the two main pillars of the best course of British husbandry; they have contributed more to preserve and augment the fertility of the soil for producing grain, to enlarge and improve our breeds of cattle, and sheep, and to afford a regular supply of butcher's meat all the year, than any other crops; and they will probably be long found vastly superior for extensive cultivation, to any of the rivals which have been often opposed to them in particular situations." Another very able writer also remarks, that the estimated value of the turnip crop annually growing in the United Kingdom of Great Britain and Ireland, is

fourteen millions pound sterling, equal to upwards of sixty millions of dollars; and when we further recollect, that it enables the Agriculturist to reclaim and cultivate land, which, without its aid, would remain in a hopeless state of natural barrenness: that it leaves the land clean and in fine condition, and also to ensure a good crop of barley, and a kind plant of clover; and that clover is found a most excellent preparation for wheat, it will appear that the subsequent advantages derived from a crop of turnips must infinitely exceed its estimated value as fodder for cattle."—*(Quarterly Review.)*

The varieties of the turnip originated by cultivation, are almost endless, but may all be referred to the three following families:—

1. The common Turnip.
2. An intermediate class, which comprises hybrid varieties, probably from Brassica, Rapa, and other species.
3. The Swedish Turnip, or Ruta Baga.

"The common turnip has numerous sorts, distinguished by their size, form, time of ripening, and other properties. This plant has, like the others of the genus, two periods in its growth. In the first, the leaves rise directly from the root, and are large, rough, and jagged. In the second period, or that of its flowering, which is generally in the second season of its growth, it sends forth a stem four, five, or six feet in height, with smooth pointed leaves, entirely different from its first or root leaves.

The minor varieties produced by the effect of climate, soil, and cultivation, are very numerous, and have every-where local terms attached to them. For the purposes of the agriculturist they may be divided into three classes, distinguished by their form:—1. the round or globular; 2. the depressed; and, 3. the fusiform. These may be considered as types, to which the different cultivated kinds more or less approach.

They are further distinguished by the colour of the portion of the root which grows above ground. This may be white, green, or red; and the distinction is of some practical importance, because those of the white colour are regarded as the most palatable to animals, while the others are the more hardy but the less esteemed as food. These colours pass by imperceptible gradations the one into the other, but, generally, they are readily enough distinguished for the purposes of the farmer.

The turnips of the next class are distinguished from these by the root being yellow internally, and externally under the surface of the ground. They have the leaves of the common turnip, and the habit and character of the *Brassica campestris* and *Brassica Napus*, and may be supposed to be hybridal varieties formed between the common turnip and these species. The turnips of this class are hardy and nutritious, and resist well the winter frosts. They are

distinguished from one another by the colour of the root above ground, which is sometimes dark purple, and sometimes green.

The last species are the Swedish turnip, as it is usually called. The substance of these turnips is hard and nutritious. They resist well the severities of the weather, and retaining their juices and nutritive properties till a late period in spring, they are highly valued as a resource for live-stock at that season. The leaves of the Swedish turnip are less acrid than those of the common turnip, and may be used for human food in place of cabbage." *

In making an estimate of the kinds most suitable for cultivation, due consideration must be given to the influence of climate, the effects of soil, the quality of the root,—its size and compactness, its early or late maturity, and the capacity to withstand the influence of the seasons. This is a matter of more importance than is generally supposed, for some varieties of the turnip will thrive well, and yield an abundant return, in certain latitudes, which in other situations less congenial to them, would not be worth cultivating. The selection should, moreover, be influenced by the objects for which the crop is designed to be appropriated. As a general rule, those varieties which are esteemed best for field culture, in which size, and the capacity of being kept are taken as the standard, are not the best for garden culture, and the table.

Those of the common turnip which attain the greatest size, are the *Lewisham Green-top Ox-heart, White Globe, Pomeranian Globe, Aberdeen Yellow, Old Scotch Yellow, Hood's new large Yellow, Common or old red, or Purple top Yellow Bullock, Purple top Aberdeen,* and the *White Norfolk.* Many of these, so far as we know, have not yet been tried in this country; but in Scotland, according to tables furnished by Lawson, in his Manual of Agriculture, they are represented as having attained an enormous size,—single specimens being produced which weighed from ten to twenty-three pounds. For the market gardener in the neighborhood of Charleston, the Early Dutch, Red-top, the Early Snow-ball, and the Pomeranian, have been found to be the best varieties. Many others deserve to be tried, and in all probability, more extensive experience will bring us acquainted with other kinds well adapted to our soil and climate. The Teltou, a small variety cultivated upon sandy planes about Berlin, is highly esteemed in Europe, for the richness of its flavor, but is, as yet, unknown among our farmers and gardeners.

The varieties of the Ruta Baga are less numerous, and of these, the purple top is universally preferred. But there are some hybrid varieties formed from the ruta baga and the white turnip, which rank deservedly high. Dale's hybrid, formed by a cross between the green-top Swede or ruta baga, and the white globe, is one of these; and the Lawton hybrid, which resembles the above in most

* Low's Agriculture, p. 289.

of its properties, is said to be a very superior variety. The following experiment, made by Mr. John Gow, of Fettercairn, to test the comparative value of Dale's and Lawton's hybrid, deserves attention. The field in which he grew these two turnips, contained about twelve Scotch acres, composed of a deep black sharp soil, on a gravely sub-soil, which was deep ploughed in the autumn of 1834, after a crop of oats; twice ploughed in the spring of 1835, and afterwards cleared of weeds, previous to its being drilled up for sowing on the 4th of June. The manure, consisting of twenty tons per acre of well decomposed farm yard dung, was applied in drills twenty-eight inches apart, and these sown alternately with the above sort of turnip.

The Dale's hybrid turned out the most regular in size; the largest were about twenty-eight inches in circumference, and the average weight per drill, of four hundred and twelve yards long, on the 4th of January, when they were pulled, two hundred and fifty-five stones imperial, equal to four thousand five hundred and ninety stones, or nearly twenty-nine tons per Scotch acre.

The Lawton hybrids were more irregular in size, the largest being about thirty-two inches in girth, and on being taken up on the 9th of January, weighed on an average, three hundred and five stones per drill, or thirty-four tons and fifty stones per acre. *

SOIL AND ITS PREPARATION.

Turnips may be produced upon any dry soil in our country, provided sufficient attention be paid in the way of previous preparation, by effective ploughing, harrowing, and manuring. They do best, however, upon a moderately dry, but rich, sandy loam. Wet soils are not adapted to the growth of turnips; and stiff clays, unless ameliorated by the addition of sand and lime, with a large quantity of manure, will seldom produce a good crop of this vegetable.

The course of preparation to which the soil designed for turnips is submitted, preparatory to putting in the crop, the land must be manured according to circumstances. It is a common practice in the upper districts of this State, and perhaps in the Southern States generally, to put turnips upon lands recently cleared of the forest growth. The land is generally cleared in the winter, and after the heavier timber and brush wood have been removed or burned upon the spot, it is suffered to remain until May, or the first of June, when all the leaves or trash are raked up and burnt, after which a *coulter* drawn by two strong horses, is passed through, first in one direction, then across, making the cuts about six inches apart. The effect of this is to divide all the smaller roots, and loosen them in the soil, so as to remove all obstacle to the subsequent ploughing. This done, the land is in the next place thoroughly ploughed with a

* Lawson's Manual of Agriculture, p. 257.

strong bull-tongue or gofer plough, in different directions, which while it completely loosens the soil, brings the roots to the surface. The harrow, then follows, by several passes, and the process of preparation is completed by raking up and carrying off all the roots brought to the surface by the plough and harrow. The seed is generally mixed with top-soil and ashes, and sown broad-cast. It is then covered either with the harrow or a brush, drawn by one horse.

In this way we have seen very fine crops of turnips made. The broad-cast method of sowing is less objectionable here than upon old land, inasmuch as such a soil does not usually produce grass or weeds, in sufficient quantity, to interfere, materially, with the growth of the turnips. After sowing, therefore, the crop receives no additional attention.

On old land the course of management must be widely different. Turnips may follow Indian corn, wheat, barley, rye or oats, and where clover is grown, they do well on a clover ley. In all these cases, the ground should, if possible, be well turned up and harrowed in the fall; and in case of its being stubble, we would recommend lime to be spread just before ploughing, at the rate of from thirty to fifty bushels to the acre. After this preparation, it may be suffered to remain until April or May, when it should receive another ploughing across the former furrow, and a thorough harrowing to keep down grass and weeds, and prevent it from becoming foul before the time of planting shall arrive. At seed time, the whole should have a *deep* ploughing in both directions; or, if rough, after the first ploughing, it should be rolled and then harrowed previous to passing the plough and harrow in the cross direction. We attach great importance to the deep ploughing, and would strenuously urge upon planters the use of the sub-soil plough, which effectually loosens the sub-soil to the depth of sixteen or eighteen inches, without bringing it to the surface. As a substitute for the sub-soil plough, we have adopted the following plan in preparing for our root crops, (turnips, beets, carrots, parsnips, &c.,) with great advantage, viz: to follow the common single mould-board plough, in the same furrow, with the bull-tongue, so as to loosen the sub-soil to a sufficient depth, without bringing much of it to the surface, and thus opening the substratum, so as to allow the long tap-root of the plant to penetrate deeply into the soil.

When circumstances render it necessary to make turnips follow a summer crop, which is usually the case on most of the market farms near the city, a different course of preparation will be necessary. In such cases, the ground must first be cleared of grass and weeds, because there is generally such a luxuriant growth of these, that were they turned under, the land could not be reduced to a sufficient fine tilth for turnips. This may be done with the hoe and rake, but can be more expeditiously and economically performed

by means of an improved paring plough, one of which we obtained last fall from Boston. After paring the sward with this implement, it is only necessary to pass the harrow once or twice to lossen it, after which all the grass can readily be removed with the hand-rake.

Having thus cleaned the land, it must be well ploughed and harrowed, as above directed, and if it be rough from clods, also well rolled. Much advantage would also be derived from the use of an implement very extensively used in England, called a *grubber*, which has many long teeth, slightly curved forward, which, by penetrating to a much greater depth than the teeth of the common harrow, more effectually pulverise the soil, and bring all the grass and other roots to the surface, from which they may be raked up and carried off.

The next step in the process of preparation, consists in throwing the land into ridgelets. This is most easily and neatly done with a double mould-board plough, by drawing furrows across the field at the requisite distance. Many farmers allow only eighteen inches, from drill to drill. This distance completely precludes the possibility of using either the plough or cultivator in the management of the crop, for which reason we prefer setting our drills, as well for the common turnip, as for the ruta baga, at least twenty-eight inches, from centre to centre. To form ridgelets of the requisite distance with the double mould-board plough, it is only necessary to run single furrows, the space between which will represent a ridge; but if the common plough be used, the ridge can only be formed by going down one side, and returning on the other.

When the field has been thus thrown into ridgelets, or even while this process is going on, (which is the better course,) preparation must be made for putting in the manure. This leads us to the consideration of another branch of our subject, upon which there has been much difference of opinion.

OF MANURING.

Most persons prefer, for the turnip crop, manure which has undergone the process of fermentation, or as it is usually expressed, "rotten manure." There may be some reason for this preference, but as it may not always be possible to obtain this in sufficient quantity, it is important to know, that unfermented manure will produce good turnips. Our last crop, which was a good one, was grown upon manure put in immediately as it was carted from the city, without any previous preparation.

All the animal manures may be used for the turnip crop, or these may be applied in combination with other fertilizers, as in compost, —with lime, ashes, soot, &c. As these latter substances, with some others, as bone-dust, poudrette, &c., are usually applied by being

drilled with the seed, or as a top-dressing, we shall reserve what we have to say of them until we shall have described the method of putting in the farm-yard dung, and compost.

While the ridglets are being made, the carts should be employed in transporting the manure, previously well chopped up, from the yard to the field, and as the cart proceeds in the direction of the ridges, the wheels following the spaces between them, the manure should be dropped in small piles at suitable intervals. Other hands follow with forks and shovels, and spread it evenly in the furrows, between the ridges. The manure is then covered in the following manner:—proceeding down one side, with the single mould-board plough, with the right hand to the furrow, one half the ridge on that side, is turned upon the manure, and the same thing being done on the opposite side, by the return, the ridges are reversed, the summit of the new ridge being now directly over the manure, while the site of the original one, is converted into a furrow. The same thing may be accomplished at once, by splitting the ridge with the double mould-board plough.

The next step of the process consists in flattening the ridges.—This may be done by a common hand-rake, the corner of a hoe, or what we prefer to either, a light roller, long enough to pass over two ridges at once. When the soil is too wet to admit of the use of the roller, we use a strong piece of oak board, eighteen inches long, and about eight wide, with a hole through the middle, near one edge, for the passage of a bolt, by which it is screwed to the foot of the stock of the common shovel-plough. By passing this along the top of the ridge, it is raked off smoothly and evenly, and left in a good condition for the reception of the seed.

This is unquestionably the best method of preparing the soil for the turnip crop. It is almost universally adopted by the best agriculturists of England, in which the turnip culture has been brought to a greater state of perfection than in any country of the known world. There are still those in our own country however, who cannot be driven from ancient customs and prejudices; who are ever ready to denounce any improvement, as one of the visions of the "*book farmer;*" and who, moreover, instead of providing an abundant supply of this invaluable root, by judicious drill-husbandry, for the use of their famished stock in winter, content themselves with sowing a paltry patch of impoverished land, with the view of obtaining a few miserable tubers to boil with their beef and pork.—We have already described the method usually adopted by these slovenly Agriculturists, when the crop is to be put upon new land. The following course is more frequently pursued:—the cattle are penned and fed upon a small lot of ground, during the winter and spring, exposed to the peltings of the storm, and litterally bogged in their own excrement. When the planting season approaches, this is ploughed, or rather scratched, slightly harrowed, and then

receives the seed broad-cast, after which the crop is left to itself, to contend as it best can, against the grass and weeds which spring up amongst it, while the sub-soil, untouched by the plough, presents a barrier against the descent of the tap-root of the plant, as impenetrable as a brick pavement.

This is the species of turnip culture pursued by nine-tenths of the farmers of South-Carolina, who, when they are told of the extensive and successful cultivation of this invaluable vegetable elsewhere, as winter food for stock, gravely reply, that our climate is not suitable for the growth of turnips. The consequence is, that their domestic animals are suffered to buffet it, through the winter, on a stinted allowance of corn husks, and it is not so much a matter of surprise that so many die, as it is that any live, under such a system of management.

Besides the methods of manuring which have been mentioned, many of the most successful Agriculturists of Great Britain pursue the plan of supplying the manure for the turnip crop, by means of a drill of peculiar construction, by which it is deposited with the seed, and by the same operation. For this purpose, they use decomposed farm-yard manure, poudrette, crushed bones, rape-cake, ashes, soot, lime, plaister, &c. This is certainly a very expeditious method of getting in the crop; but, so far as we know, these machines have never been introduced into this country, and even in England, where they are used, it is said that their operation is far from perfect. That most frequently employed, consists of "a large box placed upon the frame-work of the sowing machine. Moving in the lower part of this box is a spindle, with teeth or pinions upon it. These teeth, working amongst the bruised manure cause it to fall through the apertures at the bottom of the box, as in the case of the broad-cast sowing machine. The bruised manure falling into funnels, is conveyed to the ground just before the tubes which carry the seeds of the turnips to the ground, and in this manner, both are sown at the same time." *

We have alluded already to the practice of applying the lighter, and more portable fertilizers, as lime, ashes, poudrette, crushed bones, &c., as a top dressing. This is attended with great advantage, as is also the mixture of a due proportion of these substances with the farm-yard manure spread in the drill. In our region, however, manure applied as a top dressing merely, will not suffice for the turnip crop. To produce it in perfection, the soil must receive a liberal supply of putrescent manure, and those who cannot furnish this, or are too indolent to do so, need not pretend to raise turnips, near Charleston at least. In some situations, however, putrescent manures do not seem to be so indispensible. We have the report of an experiment made by Mr. Samuel W. Smith, in 1837, upon four pieces of land of the same size and quality, as

* Low's Agriculture, p. 295.

follows:—One section was dressed with stable manure; a second with compost—both spread upon the drill. A third section had sowed upon it two bushels of fine lime, and two and a half bushels of wood ashes;—the fourth received two bushels of bone dust. All these sections were cultivated alike, and all escaped the fly. Nos. 1. and 2 suffered from the turnip worm, but seemed to keep the ascendancy until about the middle of July, when the others appeared to take the lead. The product was as follows:—No. 1. 390; No. 2, 496; No. 3, 740; and No. 4, 852 bushels per acre. *

PREPARATION OF THE SEED, AND SOWING.

As the young turnips are very apt to be cut down by a small insect, as soon as they appear above ground, various attempts have been made to prevent this by steeping the seed in different fluids, supposed to be inimical to these depredators, before sowing. Experience, however, has proved that these expedients possess little or no value; they are therefore now seldom resorted to. A better plan is, to mix old and new seeds, equal quantities of each, then to steep one half, leaving the rest dry, and finally mixing all together previous to sowing. As old seeds do not germinate so readily as new ones, and those which have been steeped sooner than such as have not been submitted to this process, the result of the preparation here described is, that the young plants come up in succession, at different periods, so that although the first may be destroyed by insects, the last will have a chance to escape, because of the insects having disappeared before they come up.

The ridgelets having been prepared and flattened, as already directed, the seed are to be sown evenly upon the top, in a single drill. This can be done most expeditiously by a drill-machine, which opens the drill, deposites the seed, covers it, and rolls the ground by the same act. With a good machine of this kind, one hand can sow several acres of turnips in a single day, depositing the seed and covering them as fast as he can walk. When one of these machines is not at hand, the drill must be opened with the corner of a hoe, or the end of a rake, and the seed deposited by hand;—or what is more expeditious, the seed may be put into a common porter bottle, having a quill passing through the cork. By this simple contrivance, the process of sowing can be accomplished very expeditiously. The seeds must be covered with a rake, or a brush, made by tying together a bundle of small switches, like a broom. A roller should follow, to press down the loose soil upon the seed.

We say nothing of the method of sowing broad-cast, because we think it should never be practised. In all cases, the acts of forming the ridgelets, putting in the manure, sowing the seed, covering and

* Farmer's Cabinet.

rolling them, should follow each other in immediate succession, in order that the seed may be put in while the soil is yet loose and moist.

The quantity of seed allowed to the acre, is estimated from one pound to two pounds and a half. Could we be sure of all germinating, one pound would be amply sufficient, but it is better to err on the side of safety, and regulate the future stand by early thinning, when the plants stand too thick.

The time of Sowing involves a problem which it is difficult to solve. It must be determined by climate, and the results of general experience. In the North of England and in Scotland, all concur in representing from the first of June to the middle of July, as the best period for sowing the turnip crop. In the northern and eastern parts of the United States, from the middle of July to the last of August, is preferred, but turnips sowed at this period, in Carolina, especially near the sea-board, seldom succeed well. The main crop should be put in here in the course of September, but we have succeeded well with sowings made in October. In garden culture, turnips may be sown even as late as November and December, but then foreign seed should be used, as being less apt to run too early to seed in the spring. As a general rule, it will be advisable, in field culture, to sow the Norfolk and other late varieties at an earlier period than those which arrive sooner at maturity.

CULTIVATION.

As soon as the plants have thrown out two or three rough leaves, the cultivator should be passed between the drills, to loosen the soil, and destroy any weeds and grass that may have sprung up. In the performance of this operation, the cultivator should be so regulated, as to run within two or three inches of the plants, thus leaving a strip of four or five inches wide, with plants occupying the centre. The hands follow with the turnip hoe, to thin the plants to the proper distance, and clear away any grass and weeds that may occupy the narrow strip left by the cultivator. This, next to the proper preparation of the soil for the reception of the crop, is the most important act in turnip culture, and full success can only be obtained by its perfect performance. When the crop is small, as in garden culture, the plants can be thinned by hand, but in field culture upon a large scale, such a procedure would be impracticable.--Under such circumstances, the whole process must be performed with the hand hoe, and here much depends upon the use of a proper instrument, and the dexterity of the individual who employs it. The common hoe is not at all suited for this operation. The best turnip-hoe has an eye of the ordinary kind, for the reception of a light handle from three to four feet in length, with a branch leading off from each side of the eye, like a

common hay fork. These branches should have the set of an ordinary hoe, and to their ends a plate of steel, seven inches in length, and three wide, sharp upon both edges, should be riveted in a transverse direction. When the branches or prongs are properly curved, and the implement is held in the ordinary position in which it is used, the transverse plate or blade, should range in a direction nearly horizontal or parallel with the ground. The operator in using this hoe, stands facing the row or drill, and with light alternate strokes, first towards him, then in the opposite direction, across the drill, thins the turnips to seven or eight inches distance, each stroke of the hoe removing all the plants occupying the space between those that are to be left standing. Care must be taken in the performance of this operation, to merely shave the surface, otherwise the standing plants may have their roots too much exposed, and may be thus destroyed. Any weeds or grass that may have come up in the drill, must be removed at the same time. Most hands who have not been accustomed to this kind of hoeing, will manifest, at first, a little awkwardness, but by a little practice an astonishing degree of dexterity is acquired, and the work is so light, that in England, where the turnip culture is carried to the greatest extent, hand-hoeing is generally confided to females and children.

After the lapse of a few days, the crop must be gone over a second time. A small single mould-board plough should now be run close to the plants, with the left or land side to the drill, in order to throw a furrow slice from the plants into the middle of the alley. The cultivator may follow in the middle, or the intermediate ridge, formed by the two furrow slices, may be cleft with a double mould-board plough, so as to throw the loose soil back to the plants. The advantage of this operation is, that while it effectually destroys all weeds and grass, it loosens the soil about the roots of the plants, and thus hastens their growth, and enables the tubers to expand more readily. The hoes should follow the plough, to clear away any grass that may have sprung up about the plants, and haul up a little loose mould to them, where the plough has failed to lay it up neatly. At the same time, any supernumerary plants that may have been left at the first working, should be removed.

In many cases, when the season is favorable, and the land is in good tilth, by the time this second working has been completed, the tops of the turnips will have attained such a size as to completely overspread the intermediate alleys, and thus render it impossible for them to sustain further injury from grass and weeds. When this is not the case, a third working, like the second, must be given them, after which no more will be necessary.

When turnips are sowed broad-cast, there is no possibility of availing ourselves of the use of the plough. They can only be kept

clean by the hoe—an exceedingly laborious and tedious operation; which necessarily fails to open and pulverise the soil so as to allow the roots a favorable opportunity to grow and expand. But as we have already condemned this system of culture, we shall say no more on the subject at present, than to remark, that here, as in the drill culture, the plants should never be left nearer than seven or eight inches—and in the larger varieties, as ruta baga, Dale's and Lawton's hybrid, the Norfolk, &c., ten or even twelve inches will be better. Many farmers commit a great error in endeavoring to augment their product, by suffering the plants to stand too thick.—The turnip never attains a good size when crowded, and one of our most experienced and successful planters informed me a few days ago, that the largest turnips he ever saw grown, were planted in checks, twelve inches apart, four seeds to each check.

By some it has been recommended, when the plants have attained a sufficient size, viz:—when the roots are beginning to button or expand, to pass a light harrow across the drills. By such a course the soil will be finely pulverised, and much of the grass and weeds will be destroyed; but we should apprehend that many of the plants would be pulled up, or so materially crippled, as to materially retard their growth. When the ridge system of planting is adopted, the harrow could not be used without serious detriment.

It is a good practice, when the materials can be provided, to sow upon the young turnips after they have come up, ashes, lime, plaister, bone-dust, soot, and other fertilizers of a similar nature.—These substances not only promote the growth of the plants, but are supposed by many, to afford protection against the turnip fly.

RUTA-BAGA.

The cultivation of the Swedish turnip, or ruta-baga, is managed, in most respects, in accordance with the directions given above.—To insure a full crop, three things are indispensable;—a proper soil, fine tilth, and high manuring. In this country, the ridgelets are generally set at from thirty inches to three feet, and the plants should be thinned at least ten or twelve inches in the drill.

As ruta-baga requires a longer time to arrive at maturity than the common turnip, the sowing should commence earlier. The seed should be put in between the first week in August and the middle of September; but we have had very good turnips from sowings made as late as the first of October. These remarks are to be understood as applicable to the neighborhood of Charleston. In the interior of our State, the crop should be put in somewhat earlier. The subsequent management of the crop differs in no particular from that recommended for the common turnip.

Much has been said about the advantages and disadvantages of transplanting ruta-baga. This course was strongly advocated by

Cobbet—to whom American husbandry is greatly indebted for the introduction of the culture of this invaluable root into the United States. The young plants, when transplanted, take as readily as cabbages, and so far as our own experience has enabled us to judge, when thus treated, the roots are as large, or nearly so, as those from the seed. Transplanting, therefore, presents itself as an important means of supplying the blanks left in the field, by the failure of the seed, hence, in the cultivation of this crop, a convenient opportunity should always be taken, as soon as the plants have attained a sufficient size, and a proper season offers, to use such as may have been drawn in thinning the drills, to fill up any places that may have been left deficient. To raise the plants in a seed bed, for the purpose of subsequent transplantation, like cabbages, is a practice, we apprehend, too tedious and expensive, ever to be generally adopted for a main crop, although there may be cogent reasons for resorting to it, when ruta-baga is cultivated only on a small scale. The plants are dibbled in like young cabbages, but on account of the long slender tap-root, the operation is attended with more difficulty; because if this should be bent up upon itself, in setting the plant into the ground, although it may take well, the turnips will never be so fine. Care must also be taken, to press the dirt well about the root.

INSECTS INJURIOUS TO THE TURNIP CROP.

We need not dwell long on this subject; for notwithstanding its importance, and the very general attention it has attracted, we are yet ignorant of any certainly effectual means of preventing the depredations of these enemies of the farmer, or of destroying them after they have made their appearance.

The turnip, during the different stages of its growth, is subject to the depredations of a variety of insects and their larva, which sometimes destroy the entire crop. The most injurious of these is, a very minute beetle:—the *Haltica Nemorum, turnip-fly, or Black-jack*. These animals are exceedingly minute—not more than a twelfth or the twenty-fourth of an inch in length, of a shining green color, with a brownish or yellowish hue, and all of them have remarkably thick and strong hind-legs, by means of which they leap with extraordinary activity. They are generated in myriads, and prey upon the seed-leaves of the plant, as soon as they appear above ground, thus putting a stop to all subsequent growth. It was formerly conjectured, that the eggs of these insects were conveyed to the field either with the manure or the seed. Recent investigations have shewn that this is not the case, but that the eggs are deposited on the under surface of the leaf, where a small mag got is soon produced, which feeds upon the plant, and is speedily transformed into the perfect insect.

The ravages of the *Haltica* are so great, in some seasons, as to lay waste the turnip crop through whole districts of country. It is estimated that in 1786, the loss from this cause, amounted, in the county of Devonshire alone, to £100,000.* Many remedies have been proposed, but thus far no one has been found very successful. Rolling should always be practised. Fine road-dust, ashes, soot, lime, powdered tobacco, &c. may be thickly sowed upon the young plants while covered with dew; and we are informed by Wundrum, that by watering the plants with a strong infusion of wormwood, and sowing upon them fine road-dust, they were protected. Kollar also used this remedy with success, upon his flax, small grain, and turnips.† Smoke was successfully employed by Arbuthnot; and, recently, whale oil soap has been strongly recommended. The main point is to push forward the growth of this plant; for it has been found, that as soon as they have formed the rough leaf, no further injury is sustained from this insect.

The larva of a species of saw-fly *(Fam. Tenthredinidæ,)* sometimes commits serious ravages upon the turnip crop. Marshall informs us, that in England, several thousand acres of turnips had to be ploughed up in 1782, on account of the devastations caused by these insects, and so numerous were they, that upon the cliffs and beach they could be taken up with shovels, while three miles inland, they crowded together like a swarm of bees. Again, in 1783, whole districts were ravaged by them. These caterpillars are of a blackish color, and they feed upon the young and succulent rough leaves of the plant. Birds are the best remedy, whose friendly visits should be encouraged, at such times, by the farmer.

It is not unusual to find the roots of turnips, cabbages, and other allied plants, disfigured by irregular knobs or tubercles, which check the growth of the roots; render them hot and acrid, and occasion the top to wither. This disease, called in England, "fingers and toes," "anbury," &c., is supposed to be occasioned by a small curculio insect, *(Curculio, Contractus. Marsham, Rynchœnus, Assimilis, Fabr.)* which perforates the skin of the root, with its small proboscis, and there deposites its egg, which soon hatches a small maggot. This insect, with another *(Nedyus Contractus, Steph.)* the maggot of which erodes the surface of the root, is probably the cause of the diseases of this vegetable, called *blight* and *canker*.—The best remedy for these evils is, free liming, and a proper rotation of crops. When turnips have been cultivated for a long time in succession, on the same soil, they are very apt to become affected with canker, and from the result of our own observations, we are inclined to think that it is more common upon clay soils than those of a sandy nature.

* Young's Annals of Agriculture, vol. vii, p. 102.

† A Treatise on Insects injurious to Gardeners, &c., p. 143.

The insects enumerated above, are those which ravage the turnip crop in Europe. We are not certain that those with which we have to contend in the United States, belong to the same species. If not, they are certainly nearly allied.

PRODUCT.

The quantity of turnips capable of being produced upon an acre of ground, is exceedingly variable. In Ayreshire, an acre has been known to produce sixty tons, but this must be considered an extraordinary crop. An acre of ruta-baga, for which Commissioner Coleman, of Massachusetts, received the premium of the Agricultural Society, produced nine hundred and three bushels. In the Southern States, so large a product cannot be expected; indeed, the average crop in the most favorable situations, is considerably under the above estimate.

G———.

THE FLOWER GARDEN.

MONOGRAPHY OF THE GENUS CAMELLIA, OR AN ESSAY ON ITS CULTURE, DESCRIPTION AND CLASSIFICATION;

BY THE ABBE BERLESE.

Translated from the French for the Horticultural Register, by Henry S. Dearborn.

[Continued from page 381.]

SEC. 9.—MEANS OF PREVENTING THE BUDS FROM FALLING OFF.

To prevent the fall of the buds,—a natural desire for the horticulturists—and induce the Camellia to bloom abundantly every year, it is necessary to attend constantly and in the most faithful manner to its culture, especially from the time of re-potting, to the development of the flowers. We shall not repeat, what has been said upon re-potting, but add: first, that it is indispensable, immediately after that operation, to keep the Camellia in a temperature of from 58 to 65 degrees, during the day, and from 54 to 58 in the night; second, that as soon as the young shoots have terminated their developement, during which they are still in a herbaceous state, it is requisite to increase the heat of the green-house from 68 to 77 degrees during the day, and from 58 to 65 in the night. This augmentation of temperature, causes the buds to appear more readily, in greater abundance, and more vigorous. We have observed, that if nature is not aided at this period, by an increase of heat, the new shoots, being left in a too low temperature, are suddenly checked and become hardened, before their natural maturity is completed

In this conjecture, the developement of the buds become more difficult in consequence of the hardness of the wood, and is not effected until a later period; they are often, from this cause, less numerous, and very imperfect; and besides, they fall off, on the first change of temperature. It is probable, that this fatal accident is in consequence of their no longer receiving that lacteous nourishment, from the herbaceous shoots which contributes so powerfully to produce, and firmly attach them to the branch, which they are destined to embellish, at a later period.

When the buds are perfectly formed,—which is, as has been said, in about three weeks after the first effort of the plant to throw out new shoots—care must be taken, to diminish gradually, the heat of the green-house, until the period, when the Camellias are removed into the open air; which is usually towards the end of June.

Finally, being placed in its summer exposition, the Camellia demands the strictest observance, of all those directions which were given in the fifth section.

But those directions, however well attended to, will not prevent the fall of the buds, if it is neglected to keep the plant in *a uniformly equal temperature*, of between 47 and 50 degrees during the day, and 43 and 45 in the night, from the first of October until the end of March. We designedly insist upon the necessity of a strict attention to this uniformly equal temperature, because that in fact whether the Camellia is kept, during the rigorous season, in a constant temperature of but from four to six degrees above the freezing point of 32, by only permitting the heat to be augmented by the exterior atmosphere; or whether the temperature of the green-house is always maintained up to between 54 and 60, this double difference remaining constantly the same, cannot in either case be injurious to the florescence. In the first it will be only later, and in the second more precocious; but if, in the last hypothesis, the artificial heat is, for even a short period, too violent, in consequence of the furnace being badly managed, the plant will bloom well, it is true, but not having enjoyed a constantly uniform temperature, in the green-house, up to the usual period of its removal, it languishes, loses its leaves, and often, it is not in the power of the horticulturist, to prevent it from perishing. Such is the fate of the forced Camellia, which are destined to decorate our saloons in winter, and furnish the tribute of their brilliant flowers, during the season of magnificent entertainments.

An equality of temperature is therefore, essential for the preservation of the buds. A too sudden change, whether it arises from the momentary introduction of cold air into the green-house, at the time when the heat is up to from 54 to 60 degrees, or from a too great elevation of the temperature, to from 60 to 65, too suddenly introduced, when the thermometer indicates but 32 degrees; both of these sudden and violent transitions produce the

same results,—the fall of the buds: the reason appears to us evident.

When the buds are near expanding into blossom, a mild and continued heat causes them to advance rapidly, the vegetation of the Camellia, being then confined to only this part of the plant. If then, to an excessive elevation of the atmosphere, there succeeds a considerable reduction of the heat, the sap, operated upon by this sudden change, is checked; the buds no longer receiving nourishment, as abundantly as before, they become dry and fall.

A physiologist cannot fail to notice, with deep interest, how powerfully the heat and cold, instantaneously acts, upon the buds, when they have reached a certain degree of development. The slightest difference of temperature affect them considerably.

The necessity then, cannot be too earnestly insisted upon, of keeping the heat of the green-house, at all times very near the same degree of elevation. In the spring, this regularity is less necessary, because there is nothing to be feared from such sudden transitions, and the solar heat is daily increasing; but, in winter, the atmospheric variations, being so frequent and instantaneous, and the life of the plants being confined to artificial means, it can be easily conceived, that much greater vigilance is necessary to regulate, according to the circumstances, the temperature which they require.

To act in conformity to these established principles, it is necessary to have two thermometers in the green house, one being placed on the rear and the other on the front wall, and to examine them attentively several times every day. When the temperature falls as low as 38, the doors and sashed should be immediately closed; and if, notwithstanding this precaution, the thermometer does not indicate a proper heat, a little fire must be kindled in the furnace; but care must be taken not to elevate the temperature either too suddenly, or too high; from 38 to 41 degrees of constant heat is better than 54 which is irregular and interrupted. We do not open our doors, only when the exterior air is of a congenial temperature, or when the sun shines on the superior sashes of the green-house, and the interior heat has arisen from 50 to 54 degrees. It should be recollected, that this plant is like a watch, which requires to be daily wound up, by a regular process and not at various times and by jerks.

We have seen the buds fall, within forty-eight hours, from a hundred beautiful Camellias, which were enclosed in a green-house, in consequence of the temperature of 60 degrees, to which the plants had been accustomed for many days, having been allowed to fall as low as 38. It can readily be conceived, that such an extraordinary change of temperature, should disorganize the ascending progress of the sap, and cause the most fatal consequences.

Finally, to prevent the buds from falling, there is still another very simple method, which was made known to us, by the late M. Celes, and which we have practised often with success. It consists in placing the Camellia filled with buds, upon a moderately warm hot bed, four feet broad and three feet in depth, covered with a glazed sash, and put in fermentation by fresh horse manure, or dry leaves, well pressed down. The manure should be put in the interior of the bed, for the evaporation produced by these confined substances, is injurious to the florescence. The Camellias when placed in this hot-bed, are managed in the same manner, as those in the green-house ; that is, giving them air, whenever the exterior temperature will permit, and covering them with mats during the night ; if it freezes, the coverings are doubled and kept on until there is a change to mild weather. The air is then gradually admitted and they are moderately watered. In relation to this subject we can relate a sufficiently curious fact.

We saw, in the rigorous winter of 1829 and 1830, M. Celes, confine, under the sashes of a hot-bed, which were covered with mats and straw, the most beautiful white and striped Camellias in full bud, and leave them thus deprived of air and light, during the whole winter, and when the hot-bed was opened, although the humidity popured out in clouds, and seemed to drown the plants, nearly all the buds were uninjured, perfectly fresh, well nourished, and some of them beginning to bloom, and all of them in a few days were admirably developed.

It is here proper to mention some varieties of the Camellia, whose buds expand into blossom with difficulty, but very rarely, in consequence of the multiplicity of the petals, which are contained in them : they are the Camellia *Dorsetti*, *Woodsii*, *gigantea*, *Chandlerii*, *Rex*, *Georgius*, *Florida*, *&c.*

The buds of these plants often only half open, and sometimes even less ; they remain in this state for several days, and finally drop off.

If these buds are opened after their fall, a certain quantity of water is found collected in their calyx, and their central petals in a state of decomposition. To this stagnant humidity it is most probable may be attributed the destruction of the vegetable energy of the short peduncle which sustains the bud, and whose putrefaction occasions its fall.

This examination has induced us to attempt a particular mode of obtaining a regular florescence of these varieties of the Camellia; and the experiment having succeeded two years in succession, it is now made known for the benefit of amateurs. We placed during the winter, several of these varieties, and especially the *Woodsii*, and *Dorsetti*, in a very airy, light, dry, and sufficiently cool situation ; the number of buds were reduced, that there might be more

sap and vigor for those which remained; the plants were kept in a low temperature, for the purpose of retarding the growth and developement of the buds, until the season of pleasant weather was so far advanced, as that the natural heat of the atmosphere became both more equal and active. At the close of the winter, these Camellias were removed into the green-house and placed in the most favorable position, where they were watered frequently, but only a little moisture was furnished at a time. In the spring all these plants developed their buds easily, and presented a magnificent florescence. We invite all amateurs to repeat this experiment and request them to inform us of the result.

Sec. 10.—THE MANAGEMENT OF CAMELLIAS IN PRIVATE APARTMENTS.

The Camellia is such a pleasing and elegant plant, that every one is desirous of decorating their saloons with it; but these positions being too warm and unhealthy, the vital principle of its organization is deteriorated, and it soon perishes.

We have thought however, that this flower might be enjoyed for a long time in private apartments, if it could be isolated from the influence of the fire and the mephitic exhalations of the human body, by the means of glass. Place for example, some shelves, like steps, against one of the walls of the room, on which may be stood pots containing several varieties of the Camellia in bloom, and enclose these steps in a glazed frame. The plants would not suffer in such a secure position, and the flowers would have a most interesting and pleasing effect. Attention will be requisite to give them air, in the morning, before the fires are made in the room; and when the florescence has ceased, they should be replaced in a green-house, or what is still better, in a glazed hot-bed.

Camellias in bloom, might be enclosed between double windows prepared for that purpose, when the thickness of the walls of the house is such as to allow sufficient space; and if the aspect is a southern one so much the better. The flowers and the verdure would be very brilliant in such an exposition, as they would be completely protected from the dust, and besides, the plant could not be injured by its removal from the green-house into a habitation so favorably situated, for the complete preservation of its health.

Sec. 11.—THE CULTIVATION OF THE CAMELLIA IN UNCONFINED EARTH.

The Camellia, when placed in unconfined earth, whether in a conservatory, green-house or a hot-bed, grows rapidly, and in a few years becomes very much extended, and blooms easily and abundantly; but if attention is not paid to having a proper drainage, to allow the water to pass off from the roots, or if it is entirely deprived of the contact of the open air,—especially in summer, the

earth in which it is planted, is deteriorated, the roots putrefy, the plant is stript of its leaves, and perishes.

To avoid this sad result of negligence, it is essential, before transplanting the Camellia into unconfined earth, to prepare the soil where it is to stand, in such a manner that the water shall not remain stagnant around its roots, which can easily be done, by first placing at the bottom of the space, where it is intended to set out the plant, some gravel, and over that a few inches of sand; and it is also advisable to put over the sand, the roots and vegetable substances which have been separated from the peat soil, when preparing it for filling the pots. The Camellia being thus set out, great care should be taken, to afford it a free circulation of air in the summer, and especially a humid atmosphere; and for this purpose, the sashes should be left open evory pleasant night, to enable the plant to enjoy the refreshing dews, during that season; and it will also be beneficial to the plants, to renew the earth which surrounds their roots, every three or four years.

The Camellia placed in unconfined earth without protection, is not capable of resisting a temperature lower than from 38 to 41: consequently it would be a useless experiment, to attempt, in the climate of Paris, to expose it to a greater degree of cold. If the winter should be mild, it may be preserved, beyond a doubt, vegetate well during the summer, and offer a beautiful appearance in autumn; but the frequent variations of the atmosphere, at that period, would cause the buds to fall off.

In warm climates, in a northern exposure, where it can be screened from the sun, and in a soil which is congenial, the Camellia would become a magnificent tree, and present at the time of its florescence an enchanting aspect. This prospect can be enjoyed at Caserta, near Naples, where there is cultivated, in the royal domains, a Camellia, which was planted in 1760. It is more than forty feet high, and occupies, with its lateral branches, a space more than twenty feet in circumference. It is covered with thousands of blossoms in the spring, to which succeeds an abundant fructification, affordiug the means of infinite multiplication. We have often visited that admirable tree, and to perpetuate the recollection, we designed and colored it on the spot, with all that exactness, which our feeble powers would allow. We presented the original painting to our master and honorable colleague, Mr. De Candolle, the elder.

(To be continued.)

AN ENUMERATION OF THE PRINCIPAL GENERA OF GREEN-HOUSE AND CONSERVATORY PLANTS; WITH THE SOIL EACH GENUS THRIVES IN.

INCLUDING THE MODE OF PROPAGATION, WHETHER FROM SEEDS, ROOTS, CUTTINGS, &c., &c.—BY C. M'INTOSH.

(Concluded from page 385.)

	Soil.	*Mode of Propagation.*
Polygala	Peat and loam	From the nature of the plants, it is difficult to get many cuttings of them; if the leading shoots be topped, plenty of lateral shoots will be produced, which will strike root as cuttings.
Pomaderris	Loam and peat	Cuttings will strike root, but as seeds are sometimes obtained, they should be preferred.
Poterium	Peat and loam	Young cuttings ripen freely.
Prasium	Light rich soil	By cuttings.
Prostanthera	Peat and loam	By cuttings.
Protea	Sandy loam	This genus is not readily propagated, otherwise than by seeds. Cuttings are sometimes rooted, but not readily, and that only in the case of a few species.
Prunus	Peat and loam	Cuttings of the young wood strike pretty freely.
Psoralea	Peat and loam	By cuttings freely.
Pteronia	Peat and loam	Cuttings propagate freely.
Pultenæa	Sandy loam & peat	By cuttings.
Puncia	Peat and loam	By Ripened cuttings.
Rafnia	Sandy loam and peat.	Best by seeds; but will also succeed by cuttings.
Raphiolepis	Loam and peat	Cuttings of the ripened wood strike freely.
Reaumuria	Peat and loam	By cuttings.
Relhania	Peat and loam	By cuttings.
Restio	Peat and loam	By dividing the roots.
Rhagodia	Peat and loam	By cutttngs.
Rhamnus	Peat and loam	By cuttings of the ripened wood.
Rhus	Peat and loam	By cuttings of the ripened wood.
Ricinus	Loam and peat	Cuttings taken off at a joint freely strike root.
Roelia	Sandy peat	By cuttings.
Royena	Loam and peat	Ripened cuttings strike freely.
Rubus	Peat and loam	By cuttings.
Ruellia	Rich light soil	By cuttings.
Ruscus	Any light soil	By dividing the roots.
Ruta	Any light soil	Cuttings of the young shoot readily strike root.
Sagittaria	Peat and loam	An aquatic genus; by dividing at the root.
Salicornia	Any light soil	By cuttings
Salvia	Any rich soil	By cuttings freely.

	Soil.	*Mode of Propagation.*
Satureja	Rich light soil	By cuttings.
Satyrium	Sandy loam & peat	By seeds.
Scabiosa	Peat and loam	By seeds and also by cuttings.
Scævola	Peat and loam	By cuttings.
Schinus	Loam and peat	Cuttings of the ripened wood, having the leaves left unshortened, strike in a mild bottom heat.
Schisandra	Sandy peat and loam	Ripened cuttings root freely.
Schotia	Peat and loam	Ripened cuttings root freely.
Scleroxylon	Loam and peat	Ripened Cuttings strike freely.
Scottia	Loam and peat	Is said to be readily propagated by cuttings, taken off at a joint while while young; the only plants we have seen have been originated from seeds: it is still rare.
Scutellaria	Light rich soil	By cuttings.
Selago	Peat and loam	Cuttings strike freely.
Sempervivium	Light soil	Cuttings taken off and dried for a few days, root freely.
Senecio	Peat and loam	Most readily by cuttings.
Septas	Sandy loam & peat	By dividing the roots.
Sida	Light soil	By seeds, and also by cuttings.
Sideritis	Light rich soil	Cuttings root pretty freely.
Siberoxylon	Loam and peat	The half ripened shoots root, but not without difficulty.
Silene	Light soil	Readily by cuttings.
Smilax	Loam and peat	By dividing at the root.
Solanum	Light rich soil	Either by cuttings or seeds.
Sorocephalus	Light loam	Treated like *Protea*, &c.
Sowerbæa	Peat soil	By dividing at the root.
Sparmania	Peat and loam	By cuttings readily.
Spartium	Peat and loam	By seeds, and sometimes by cuttings of the young wood.
Sphæro'obeum	Sandy peat	By seeds and cuttings.
Spielmannia	Peat and loam	Cuttings root freely.
Spigelia	Sandy peat	Cuttings root freely.
Sprengelia	Sandy peat	By cuttings of the young wood.
Stachys	Peat and loam	By cuttings freely.
Statice	Sandy loam and peat	By seeds, and by dividing the plants near the roots.
Stenanthera	Sandy peat	By cuttings of the young wood.
Stenocarpus	Loam and peat	Ripened cuttings strike root, but not freely.
Stenochilus	Peat and loam	Ripened cuttings strike root, but not freely.
Sterculia	Rich loam and peat	Ripened cuttings strike freely.
Stevia	Sandy loam and peat	By cuttings.
Stillingia	Rich light soil	Readily by cuttings.
Stobæa	Rich light soil	By cuttings.
Struthiola	Peat and loam	By cuttings of the young wood
Stylidium	Sandy peat	By cuttings.
Styphelia	Sandy loam and peat	Cuttings of the young wood root freely.
Sutherlandi	Loam and peat	Readily by seed.
Swainsonia	Loam and peat	By seeds, and also by cuttings.
Tarchonanthus	Peat and loam	By cuttings.

	Soil.	*Mode of Propagation.*
Telopea	Light loam and peat	There are but few instances of its propagating by any other means than from seeds, which are not often imported: hence its being so scarce.
Tempeltonia	Loam and peat	By cuttings.
Teucrium	Peat and loam	Cuttings root freey.
Thomasia	Peat and loam	By cuttings.
Thuja	Peat and loam	By cuttings.
Trachelium	Peat and loam	By seeds or cuttings.
Tristania	Peat and loam	By cuttings of the half-ripened wood.
Tritoma	Peat soil	By dividing the roots.
Tropæolum	Rich light soil	Cuttings root freely.
Tulbagia	Light sandy soil	By offsets from the bulbs.
Uvularia	Loam and peat	By dividing at the roots.
Veltheimia	Light loam	As most bulbous plants.
Veronica	Peat and loam	By cuttings.
Vinca	Peat and loam	Cuttings of the young wood root freely.
Villarsia	Peat and loam	An aquatic genus, increased by dividing the roots, or by seeds, which are produced in abundance.
Viminaria	Sandy peat	Cuttings of the young wood root freely.
Virgilia	Loam and peat	Cuttings of the young wood strike freely.
Viitex	Loam and peat	By cuttings.
Wachindorfia	Sandy loam and peat	By offsets from the bulbs, or by seeds.
Watsonia	Sandy loam and peat	In the same way as the last genus.
Westringia	Peat and loam	Cuttings of the young shoots root freely.
Witsenia	Sandy peat	By offsets from the roots or by seeds.
Woodwardia	Peat and veag. mould	Like most others of the Fern tribes, may be increased by dividing the roots, or by seeds.
Xerotes	Loam and peat	By dividing at the root.
Xylomelum	Peat and loam	By cuttings of the young wood, but with considerable difficulty.
Yucca	Rich loamy soil	Suckers from the roots and stem are the natural mode of propagation.
Zieria	Peat and loam	Cuttings of the young wood root freely.
Zygophyllum	Peat and loam	By cuttings, which root freely.

For the Southern Agriculturist.

QUERIES ABOUT MR. BEATH AND HIS COTTON MACHINE.

St. Thomas' Parish, July 20th, 1841.

Mr. Editor:—Do you, or any of your readers know any thing of Mr. Beath and his Cotton Machine, for getting out Sea-Island Cotton? I engaged one of his Machines from Mr. Plant, his Agent at Brunswick, Geo., about this time last year, and it was to have been delivered to me in November last, but up to the present time has not been forthcoming. I wrote several times to the Agent during the fall and winter, and always heard that Mr. Beath was on his way South, but have never seen him. I learned, however, sometime about the end of the winter or the beginning of the spring, that he was at that time at a plantation on John's Island.—If, therefore, you, or any of your subscribers can give any information respecting the fate of this Machine, the doing so will oblige—

A SUBSCRIBER.

THE ORCHARD.

THE PEACH.—IMPORTANT EXPERIMENT.

I had always observed that on soils containing nitre and muriate of soda, the Peach tree lives luxuriantly to an advanced age, while upon soils immediately adjoining, immature decay takes place, and the tree seldom attains the age of seven years.

Peach trees growing in the site where once stood a dwelling, generally live to an old age, the soil of which, by analysis, will give a proportion of nitre. The same thing occurs in many districts of the West and South-West; upon one farm the occupant has no difficulty in having good peaches, while his neighbor finds it a laborious task to prolong the life of the tree to a few years, and on well cultivated farms near the seaboard. I have been informed they have but little difficulty in growing this tree. Having these and other instances for my guidance, I commenced experiments with salt and saltpetre, in the year 1836, upon an orchard six years old. The trees in 1836 were full of worms; some of the trees were dead, others apparently dying, and but very few put on the appearance of health; such was its distempered condition that some of my friends advised me to cut down about one-half of those that yet showed life, saying that such was the practice of Peach growers. After cutting down those that were dead, I commenced operations on the balance with equal quantities of salt and salt-petre combined, applying about a half a pound upon the surface and in contact with the trunk of the tree; then sowed it broad-cast over

part of the orchard, at the rate of about two bushels per acre. The result of this application to the surprise of my friends, was the appearance of perfect health, white, new and vigorous shoots, the trees full of fruit, which matured with increased size and improved flavor. Towards the last of March, and again in May and September, 1837, I applied the same ingredients in different proportions, without observing much difference in the effect; though I have since thought that where I applied the salt-petre alone, and where the largest portion of the mixture was nitre, the effect was best; but in consequence of the price of salt-petre, I have endeavored to ascertain the smallest quantity that should be used, and I would not advise less than one-eighth, though I should prefer one-fourth or more. My trees this fall (1837,) were free from worms, all doing well, and I have found no further use for the axe in the orchard. In the year 1838, I applied the mixture to a part of my Orchard in March, the other part received the application in June and September; upon that part done in March, I had an abundance of fruit, while those done in the 6th and 8th months were comparatively destitute of fruit, it having been killed by a late frost. It occurred to me that I was indebted to the salt, &c., for the abundance of fruit on the trees done in March, by its retarding vegetation; and from an experiment made in '37, it appeared to be the case, though I have never considered it of sufficient importance to repeat it for the purpose of testing it further.

In regard to the best time to make this application, I would say about the first of April, and to those trees having worms in them again in June or September, as the appearance of the worm may indicate its necessity, using about two-thirds of the usual quantity for the June or September dressing, and to be used only in contact with the trunk of the tree. I have not discovered any great benefit from sowing it broad-cast over the orchard every year; I prefer to do this every second or third year. If the tree is injured very much by the worm, to wash the bark of the trunk with a solution of this mixture, and water might be of service, being careful not to apply too much; this should not prevent its application in a powdered state. To my trees planted in the fall and spring, I apply as soon as done planting in the spring about one ounce upon the surface, in contact with the trunk of the tree, and repeat this quantity again early in June or September, the peach worm at these two last periods, being in their infancy, are destroyed.

In August, after one application of this mixture to my young trees in the spring I have taken several worms from off the outer bark of a tree, bedded in gum, they have punctured it in a number of places, but did not penetrate to do any injury to the inner bark, while the next tree left without they above mixture, was nearly destroyed, the inner bark being eaten for more that two-thirds around the tree. It might be supposed that the salt and salt-pe-

tre would produce instantaneous drith, but this is not the case; I have kept them half covered in a solution of salt and water, and salt-petre and water, and in these two articles combined for several hours without causing death; they will avoid its approach, and will not remain in it unless compelled by necessity.

In compliance with the promise heretofore made, I have endeavored to give in a brief manner my practice on the Peach tree for five years, from which I have no reason to make a change, but many inducements for a continuance of the practice. If you consider it sufficiently important for publication, it is at your disposal, and if any benefit should arise therefrom, be assured it would be the highest reward for any service of mine that could be tendered to, dear sirs, your obedient servant,

LYTTLETON PHYSIC.

Ararat Farm, Council County, (Md.) July 6th, 1841.

[*Albany Cultivator.*

CUTTING THE TAP ROOT.

To the Editor of the Cultivator:—

Sir,—I know not whether I understand you correctly on the subject of the tap-root in apple trees. I am preparing to set out an orchard, and I wish to take the best course with my trees. Shall I cut the tap roots, or let them take their chance with the others.

B——.

Medford, April 18.

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We have said something in former numbers on the cutting of tap roots from apple trees, and have intimated our belief that these were not provided for ornament, nor to give us the pleasure of lopping them. We are fond of following nature, *when she is not evidently wrong*, and should prefer having a good tap-root, not only to assist in holding up the tree in a storm, but to draw up moisture from below, when the horizontal roots can get none from the surface.

And we are still persuaded that a tree which has never been removed, and which of course has a tap-root, will stand stronger and live longer than one that has been transplanted. But on removing trees, it is difficult to preserve the tap-root, or to give it a place in its new home. When we do not lop it off, we suffer it to be bent and become a horizontal root to save the labor of making a place for it. And we think this root may be rather cut off than to be broken or bent to one side. A tree will grow as rapidly, and come to maturity as soon without the tap root as with it.

[*Editor Boston Cultivator.*

HOUSEHOLD AFFAIRS.

FOR THE SICK AND CONVALESCENT.

BARLEY WATER.

Take two table-spoonfulls of pearl barley, wash it very clean, and add to it a pint of boiling water; let it boil for five minutes, pour off this water, and add two quarts more boiling water; reduce it to two pints and a half, and strain. This is simple barley water; it may be made very pleasant by adding the following: one ounce of figs, two ounces of raisins, stoned, a quarter of an ounce of liquorice; boil it till reduced to a quart, and strain.

TOAST AND WATER.

This article, simple as it is, is rarely well prepared. Cut an upper crust of bread as thick again as it is usual for toast; brown it carefully, but see that it be not burnt, smoked, or black: pour on as much water as is required, and cover the jug till cold. A slice of thin cut orange or lemon peel infused with it, improves it greatly; it should be made early in the day during summer, and placed in the sun, when it may be drank with impunity.

MUTTON BROTH.

Put into a two-quart saucepan one pound of mutton chops, cleared from fat, one onion, half a dozen corns of black pepper, and three pints of cold water; let it warm gradually, when it boils, skim it, cover the pan close and set it over a gentle fire till the chops are cooked, which will be (if the meat is not too fresh,) in three quarters of an hour.

BEEF TEA.

Cut a pound of lean beef into thin slices, put it into three pints of cold water, set it over a gentle fire where it may become gradually warm, let it be well skimmed, cover the saucepan close, and boil gently for two hours, strain it, and let it stand to settle, then pour it off clean. One onion, a few peppercorns, and a little salt, may be added if required.

EGG CREAM.

Take the yolk of an egg, with a dessert-spoonfull of cream, or new milk, and if convenient, add two drops of oil of cinnamon; this will form a mixture sufficient to serve three people to mix with their tea; for cream being chiefly the oil of the milk, and the yolk the most nutritive part of the egg, they are both lubricating and nourishing. The oil of cinnamon is cordial and tonic.

The above has been recommended in diseases of the lungs, where there is difficulty of breathing, with a short dry cough, especially after eating or motion; also in fits of hectic fever towards the evening, and night perspiration.

MILK GRUEL.

Take half a tumbler of thick gruel, and the same quantity of new milk, both lukewarm; mix together and let the patient drink it.—This, where the debility is extreme, will sustain the powers of nature when nothing else can be taken.

MUCILAGE OF GUM ARABIC.

To three ounces of gum arabic, add a pint of boiling water, and when perfectly dissolved, strain for use. The usual dose is a wine glassfull twice or three times a day; it is useful to administer some medicines in, or to allay the tickling of coughs.

GLOUCESTER JELLY.

Take rice, sago, pearl barley, hartshorn shavings, and eringo root, of each one ounce. Simmer in a quart of water till reduced to half, and strain; a teacup-full should be made warm, and given frequently during the day: it will support the strength when animal food cannot be taken.

[*Magazine of Domestic Economy.*

GARDENER'S CALENDAR FOR SEPTEMBER.

VEGETABLE GARDEN.

Sow early Dutch and other varieties of Turnips, Ruta Baga, Beets, Swiss chard, Mangel Wurtzel, Carrots, Parsnips, Salsafy, Lettuce, Spinach, Cabbages, (English seed;) Onions, Radishes, and Endive. Plant Snap-beans Transplant Ruta Baga, Cabbages, Cauliflowers, Brocoli, Celery, Lettuce, Leeks, Endive.

Remarks.—In this month, the principal crops of turnip, beets, carrots, parsnips, &c., should be sown, as they will acquire sufficient strength to withstand the cold weather before the winter sets in. When thinning out the ruta-baga, the plants should be reserved and transplanted out either into those spaces where they have failed, or into a piece prepared expressly for them. If the cabbage seeds are not English, they will run to seed in the spring without heading.

"A Subscriber," will find, by reference to our Journal, that the article on the Cultivation of Corn was selected, and as the crop there mentioned was not made in the Southern States, we have not deemed it necessary to publish his Queries. [Ed. So. Agr.